

GenCore version 5.1.3
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OM nucleic - nucleic search, using sw model

Run on: October 7, 2002, 21:30:19 ; Search time 2563.57 Seconds

(without alignments)
17175.023 Million cell updates/sec

Title: US-08-908-884-2

Perfect score: 2104
Sequence: 1 TCGATCTTTACCAATCCA.....ATAAAAAAAAAAAAAAAAAA 2104

Scoring table: IDENTITY_NUC

Gapop 10.0 , Gapext 1.0

Searched: 1797656 seqs, 10463268293 residues

Total number of hits satisfying chosen parameters: 3595312

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

GenEmbl :

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2: gb_htg:*
3: gb_in:*
4: gb_om:*
5: gb_ov:*
6: gb_pat:*
7: gb_ph:*
8: gb_pl:*
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12: gb_sy:*
13: gb_un:*
14: gb_vi:*
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17: em_hum:*
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19: em_ma:*
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22: em_ov:*
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24: em_ph:*
25: em_pl:*
26: em_ro:*
27: em_sts:*
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29: em_vi:*
30: em_htg_hum:*
31: em_htg_inv:*
32: em_htg_other:*
33: em_htgo_inv:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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| 3 | 2009.4 | 95.5 | 2011 | 6 | AR087502 | AR087502 Sequence | |
| 4 | 2006.2 | 95.4 | 2011 | 6 | AR087503 | AR087503 Sequence | |
| 5 | 1761 | 83.7 | 96887 | 8 | AC066689 | AC066689 Arabidopsis | |
| 6 | 1760 | 83.7 | 5655 | 8 | AR087501 | AR087501 Sequence | |
| 7 | 1760 | 83.7 | 5655 | 8 | ATU87794 | u87794 Arabidopsis | |
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| 10 | 1188.4 | 56.5 | 1194 | 6 | AR087506 | AR087506 Sequence | |
| 11 | 781.4 | 37.1 | 786 | 6 | AR087507 | AR087507 Sequence | |
| 12 | 686.4 | 32.6 | 104738 | 8 | ATF20B18 | AL049483 Arabidopsis | |
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| 17 | 259.4 | 12.3 | 140304 | 8 | AP002537 | AP002537 Oryza sat | |
| 18 | 259.4 | 12.3 | 168372 | 8 | AP002746 | AP002746 Oryza sat | |
| 19 | 258.6 | 12.3 | 1428 | 6 | AX049426 | AX049426 Sequence | |
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| 21 | 241.6 | 11.5 | 4270 | 6 | AX351127 | AX351127 Sequence | |
| 22 | 232.6 | 11.1 | 2154 | 6 | AX041006 | AX041006 Sequence | |
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| 24 | 200.4 | 9.5 | 2120 | 6 | AX049433 | AX049433 Sequence | |
| 25 | 199.4 | 9.5 | 498 | 6 | AX351135 | AX351135 Sequence | |
| 26 | 196.8 | 9.4 | 2446 | 6 | AX351143 | AX351143 Sequence | |
| 27 | 195.2 | 9.3 | 1824 | 6 | AX049430 | AX049430 Sequence | |
| 28 | 195.2 | 9.3 | 2420 | 6 | AX049432 | AX049432 Sequence | |
| 29 | 194.2 | 9.2 | 1385 | 6 | AX049441 | AX049441 Sequence | |
| 30 | 192.6 | 9.2 | 2235 | 6 | AX049445 | AX049445 Sequence | |
| 31 | 186.8 | 8.9 | 705 | 6 | AX049428 | AX049428 Sequence | |
| 32 | 170.2 | 8.1 | 498 | 6 | AX351133 | AX351133 Sequence | |
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| 34 | 169.6 | 8.1 | 140823 | 2 | AP003371 | AP003371 Oryza sat | |
| 35 | 159.2 | 7.6 | 67720 | 8 | AB019224 | AB019224 Arabidopsis | |
| 36 | 153 | 7.3 | 7789 | 6 | AX041008 | AX041008 Sequence | |
| 37 | 145.4 | 6.9 | 706 | 6 | AX049434 | AX049434 Sequence | |
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| 39 | 142.2 | 6.8 | 197114 | 8 | ATCHRIV51 | AL161551 Arabidopsis | |
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| 44 | 54.2 | 2.6 | 91303 | 8 | ATF24I3 | AL138655 Arabidopsis | |
| 45 | 51.6 | 2.5 | 110000 | 2 | PFMAL13P2_0 | AL049185 Plasmodiu | |

ALIGNMENTS

RESULT 1
ATU76707

LOCUS

DEFINITION

ACCESSION

VERSION

KEYWORDS

SOURCE

ORGANISM

thale cress.

Arabidopsis thaliana

Eukaryota; Viridiplantae; Streptophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;

Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 2104)

Cao,H., Glazebrook,J., Clarke,J.D., Volko,S. and Dong,X.

The Arabidopsis NPR1 gene that controls systemic acquired

resistance encodes a novel protein containing ankyrin repeats

Cell 88 (1), 57-63 (1997)

97148688

2 (bases 1 to 2104)

Cao,H., Glazebrook,J., Clarke,J.D., Volko,S. and Dong,X.

Direct Submission

Submitted (30-OCT-1996) DCMB Group, Botany, Duke University, LSRC

ATU76707 2104 bp mRNA linear PLN 13-JAN-1997
Arabidopsis thaliana regulatory protein NPR1 (NPR1) mRNA, complete cds.

U76707 GI:1773294

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| | DSNNTAAVKLEKEIAKDYEVGDSVVIYLAIVYSSRVPRPPKGVSECADENCHVAC | |
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| | LLDRCKEILVSNVDMVSLKSLPEELVKEIIDRRKELGLEVPKVKHVNICKALDS | |
| CDs | DDIELVLLKEDHTLDDACALHFAYCNVKTATDLKLDLADNVHNRPRGYTVLH | |
| | VAMRKPOLILSLLEKASAEATLEGRATMIKATMAVECNNTPEOCKSLKGR | |
| CDs | LCVELLEQEDREQIPRDVPSFAVADELKMTLLDLENVALAORLFTPEAQAAMEI | |
| | AEMGTCFIVTSLEPRLTGTGKTSFQVKVLAPERILEEHSRLKALKSTVELGKRF | |
| CDs | PRCSAVLDQIMNCEDLQIACGEDDTAKRLQKQRYWEIQETLLKAFSEDLNLS | |
| | SLTDSSTSKSTGSKSRNKLSHRR" | |
| CDs | BASE COUNT 606 a 431 c 482 g 585 t | |
| | ORIGIN | |
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| | Best Local Similarity 100.08; Pred. No. 0; | |
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| CDs | DB 1 TCATCTTTAACCAATCCAGTTGATAAGTCTCTTCGTTGATTAGCAGAGATCTCTTTA 60 | |
| | QY 61 ATTTGTGAATTCATTCGGAACCTGTTGATGACACACCATTTGATGATTCGCGG 120 | |
| CDs | DB 61 ATTTGTGAATTCATTCGGAACCTGTTGATGACACACCATTTGATGATTCGCGG 120 | |
| | QY 121 ATTCCTTATGAATTCACGACACTAGTTTCGTCGCTACCCGACTCCTCTATTG 180 | |
| CDs | DB 121 ATTCCTTATGAATTCACGACACTAGTTTCGTCGCTACCCGACTCCTCTATTG 180 | |
| | QY 181 TTTTATCTGGCCGCGCAACAGTACTCACCGACCTGATGATCTGCTGCAATTGCTCT 240 | |
| CDs | DB 181 TTTTATCTGGCCGCGCAACAGTACTCACCGACCTGATGATCTGCTGCAATTGCTCT 240 | |
| | QY 241 CCAACAGCTTCGAATCCGCTTTGATCGCGGATGATTTACAGCGACGCTAAGCTTG 300 | |
| CDs | DB 241 CCAACAGCTTCGAATCCGCTTTGATCGCGGATGATTTACAGCGACGCTAAGCTTG 300 | |
| | QY 301 TTCTCTCCGACGCGCGGGAAGTTTCTTCCACCGGTGCGTTTGTGTCAGCGAGAAGCTCT 360 | |
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| | QY 421 TGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTTCGGTTTGTGA 480 | |
| CDs | DB 421 TGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTTCGGTTTGTGA 480 | |
| | QY 481 CTGTTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCCCTAAAGGAGTTTCTGAAT 540 | |
| CDs | DB 481 CTGTTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCCCTAAAGGAGTTTCTGAAT 540 | |
| | QY 541 GCGCAGACGAGATTGCTGCCACGTGCTTCCGCGCGCGGGTGGATTTTCATGTTGGAGG 600 | |

| | | |
|-----|--|--|
| CDs | DB 541 GCGCAGACGAGATTGCTGCCACGTGCTTCCGCGCGCGGGTGGATTTTCATGTTGGAGG 600 | |
| | QY 601 TTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGGAATTAATTAATCTCTCTATCAGAGCACT 660 | |
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| | QY 721 ATATATGTGTAAAGCTTGTATGAAGCTATTTGGATAGATGTAAGAGATTAATTTGCAAGT 780 | |
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| | QY 1141 AAAAAGTGCAGTGCATCAGAAGCAACTTTTGAAGGTAGAAGCGCACTCATGATCGCAA 1200 | |
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| | QY 1441 TCGCCGAAATGAAGGGAACATGTGAGTTCTATGACTAGCTGAGCTGAGCTGACGCTCA 1500 | |
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| | QY 1501 CTGGTACGAAGAGACATCACCGGGTGTAAAGATAGCACCTTTTCCAGATCTCTAGAAGG 1560 | |
| CDs | DB 1501 CTGGTACGAAGAGACATCACCGGGTGTAAAGATAGCACCTTTTCCAGATCTCTAGAAGG 1560 | |
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| CDs | DB 1561 ATCAAGTAGACTAAAGCGCTTTCTAAAAACCGTGGAACTCGGAAACGATTTCTCCCGC 1620 | |
| | QY 1621 GCTGTTGGCAGTGTGCGACCAAGATTGAACTGTGAGGACTTGACTCAACTGCTGCTGG 1680 | |

| | | | |
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| Db | 1621 | GCTGTTCCGGCAGTCTCGACGAGATTATGAACCTGTGAGGACTTGACTCAACTGCCTTGGC | 1680 |
| Qy | 1681 | GAGAAGACGACACTGCTGAGAAACGACTACAAAGAGCAAGCAAGGTACATGGAATACAAG | 1740 |
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| Qy | 1741 | AGACACTAAAGAAGCGCTTTAGTGAGGACAAATTTGGAATTTAGGAAATTCGTCCTCGACAG | 1800 |
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| Qy | 1861 | ATCGTCGTCGGTGAGACTCTTGCTCTTCTAGTGAATTTTGTGCTGACCATATAATCTCTG | 1920 |
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| Qy | 1921 | TTTCATGATGACGTGAACCTGTTTATGCTATCTATCGTTGGCGTCATATAGTTTCGCTCTTCGT | 1980 |
| Db | 1921 | | |
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| Qy | 1981 | TTTGCATCTCTGTATATATTGCTGCAGGTGCTTCAACAATGTTGTAACAATTTGAA | 2040 |
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| REFERENCE | | | |
| AUTHORS | | | |
| TITLE | | | |
| JOURNAL | | | |
| COMMENT | | | |

| | | | |
|--|-----|--|-----|
| collection and clustering of RAFL cDNAs (RAFL cDNAs : 'RIKEN Arabidopsis Full-Length cDNA') : Seki,M., Narusaka,M., Ishida,J., Satou,M., Kamiya,A., Sakurai,T., Carninci,P., Kawai,J., Hayashizaki,Y. and Shinozaki,K. | | The Salk, Stanford, PGBC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAs: Koesema,E., Chen,H., Cheuk,R., Kim,C.J., Meyers,M.C., Shinn,P., Banh,J., Bowser,L., Dale,J.M., Goldsmith,A.D., Jiang,P.X., Jones,T., Karlin-Neumann,G., Lam,B., Lee,J.M., Lin,J., Liu,S.X., Miranda,M., Miranda,M., Onodera,C.S., Palm,C.J., Pham,P.K., Quach,H.L., Southwick,A., Tang,C.C., Toriumi,M., Yamada,K., Yamamura,Y., Yu,G., Yu,S., Davis,R.W., Theologis,A., and Ecker,J.R. | |
| Koesema,E. (SSP/Salk) and Seki,M. (RIKEN GSC) contributed equally to this work. Shinozaki,K. (RIKEN GSC) and Ecker,J.R. (SSP/Salk) contributed equally to this work as PIs. | | Koesema,E. (SSP/Salk) and Seki,M. (RIKEN GSC) contributed equally to this work. Shinozaki,K. (RIKEN GSC) and Ecker,J.R. (SSP/Salk) contributed equally to this work as PIs. | |
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| 3'UTR | | 602 a 450 c 493 g 609 t | |
| BASE COUNT | | | |
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| | | Best Local Similarity 99.9%; Pred. No. 0; | |
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QY 1801 ATTGCACTTCTCCACATCGAAATCAACCGTGAAGAGGTCTAACCGTAAACTCTCTC 1860
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QY 2041 CCAATGTATACAGATTGTAATATATATTTATGATACATCAACAATA 2087
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RESULT 3
AR087502 LOCUS AR087502 2011 bp DNA linear PAT 07-SEP-2000
DEFINITION Sequence 6 from patent US 5986082.
ACCESSION AR087502
VERSION AR087502.1 GI:10014265
KEYWORDS
SOURCE Unknown.
ORGANISM Unclassified.
REFERENCE 1 (bases 1 to 2011)
AUTHORS Uknes,S.Joseph, Hunt,M.Denise, Steiner,H. and Ryals,J.Andrew.
TITLE Altered forms of the NIM1 gene conferring disease resistance in plants
JOURNAL Patent: US 5986082-A 6 16-NOV-1999;
FEATURES Location/Qualifiers
source 1..2011
BASE COUNT 563 a 417 c 472 g 559 t
ORIGIN
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QY 591 ATGTTGAGGTTTCCTATTGGCTTTTCATCTTCAAGATCCCTGAAATTAATCTCTCTAT 650
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Db 541 ATGTTGAGGTTTCCTATTGGCTTTTCATCTTCAAGATCCCTGAAATTAATCTCTCTAT 600
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Db 661 AAGCTTGCTTAATATGTTGTAAGCTTGATGAAGCTATTTGGATAGATGTAAGAGATT 720
QY 771 ATTGCTCAAGTCTAATGTAGATATGTTAGTCTTGAAGAGTCATTGCCGGAAGACTTGTT 830
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Db 721 ATTGCTCAAGTCTAATGTAGATATGTTAGTCTTGAAGAGTCATTGCCGGAAGACTTGTT 780
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Db 1021 CCGAGGGGATATACGTTGCTTCATGTTGCTGCGATCGGAGAGAGCCCAATTTGATACFA 1080
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Db 1441 GACCGTCTCAGTGGTACGAAGAGAACATCACCGGCTGTTAAAGATAGCACCTTTTCAGAAATC 1500
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QY 2031 ACAATTTGAAACCAATGGTATACAGATTGTA 2061
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Db 1981 ACAATTTGAAACCAATGGTATACAGATTGTA 2011

RESULT 4

AF087503
LOCUS AR087503 2011 bp DNA linear PAT 07-SEP-2000
DEFINITION Sequence 7 from patent US 5986082.
ACCESSION AR087503
VERSION AR087503.1 GI:10014266
KEYWORDS
SOURCE Unknown.
ORGANISM Unknown.
REFERENCE 1 (bases 1 to 2011)
AUTHORS Uknes,S.Joseph, Hunt,M.Denise, Steiner,H. and Ryals,J.Andrew.

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|----------------------------|-----|--|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| TITLE | | | | | | | | | | Altered forms of the NIM1 gene conferring disease resistance in plants | | | | | | | | | |
| JOURNAL | | | | | | | | | | Patent: US 5986082-A 7 16-NOV-1999; | | | | | | | | | |
| FEATURES | | | | | | | | | | Location/Qualifiers | | | | | | | | | |
| Source | | | | | | | | | | 1..2011 | | | | | | | | | |
| BASE COUNT | | | | | | | | | | 563 a 417 c 474 g 557 t | | | | | | | | | |
| ORIGIN | | | | | | | | | | /organism="unknown" | | | | | | | | | |
| Query Match | | | | | | | | | | 95.4%; Score 2006.2; DB 6; Length 2011; | | | | | | | | | |
| Best Local Similarity | | | | | | | | | | 99.9%; Pred. No. 0; | | | | | | | | | |
| Matches 2008; Conservative | | | | | | | | | | 0; Mismatches 3; Indels 0; Gaps | | | | | | | | | |
| QY | 51 | GATCTCTTTAAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACACCATTTGAT | 110 | | | | | | | | | | | | | | | | |
| Db | 1 | GATCTCTTTAAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACACCATTTGAT | 60 | | | | | | | | | | | | | | | | |
| QY | 111 | GGATTCGCGGATTTATGAATATCAGACGACACTAGTTTCGTCGCTACCGATAAACACCGAC | 170 | | | | | | | | | | | | | | | | |
| Db | 61 | GGATTCGCGGATTTATGAATATCAGACGACACTAGTTTCGTCGCTACCGATAAACACCGAC | 120 | | | | | | | | | | | | | | | | |
| QY | 171 | TCCTCTATGTTTATCTGGCCGCCGAACAAGTACTACCGGACCTGATGATCTGCTCTG | 230 | | | | | | | | | | | | | | | | |
| Db | 121 | TCCTCTATGTTTATCTGGCCGCCGAACAAGTACTACCGGACCTGATGATCTGCTCTG | 180 | | | | | | | | | | | | | | | | |
| QY | 231 | CAATTGCTCTCCAAACAGCTTCGAATCCGCTCTTTGACTCGCCGGATGATTTCTACAGCGAC | 290 | | | | | | | | | | | | | | | | |
| Db | 181 | CAATTGCTCTCCAAACAGCTTCGAAGCCGCTTTGACGCGCGGATGATTTCTACAGCGAC | 240 | | | | | | | | | | | | | | | | |
| QY | 291 | GCTAAGCTGTTCTCTCCGACGGCGGGAAGTTTCTTTCCACCGTGGCTTTTGTTCACGG | 350 | | | | | | | | | | | | | | | | |
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| Db | 301 | AGAAGCTCTTTCTTCAAGAGCGCTTTAGCCGCCGCTTAAGAAGGAGAAAGACTCCAACAAC | 360 | | | | | | | | | | | | | | | | |
| QY | 411 | ACCGCCGCGTGAAGCTCGAGCTTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGAT | 470 | | | | | | | | | | | | | | | | |
| Db | 361 | ACCGCCGCGTGAAGCTCGAGCTTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGAT | 420 | | | | | | | | | | | | | | | | |
| QY | 471 | TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCCTTAAGGA | 530 | | | | | | | | | | | | | | | | |
| Db | 421 | TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCCTTAAGGA | 480 | | | | | | | | | | | | | | | | |
| QY | 531 | GTTTCTGAATCCGACAGCAGAAATGCTGCCACGTGGCTTTCGCCGCGCGGTGGATTTC | 590 | | | | | | | | | | | | | | | | |
| Db | 481 | GTTTCTGAATCCGACAGCAGAAATGCTGCCACGTGGCTTTCGCCGCGCGGTGGATTTC | 540 | | | | | | | | | | | | | | | | |
| QY | 591 | ATGTTGGAGGTTCTCATTTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTACTCTCAT | 650 | | | | | | | | | | | | | | | | |
| Db | 541 | ATGTTGGAGGTTCTCATTTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTACTCTCAT | 600 | | | | | | | | | | | | | | | | |
| QY | 651 | CAGAGGCACTTATTGGACGTTGTAGACAAAGTGTGTTATAGAGGACACATGGTTTATACTC | 710 | | | | | | | | | | | | | | | | |
| Db | 601 | CAGAGGCACTTATTGGACGTTGTAGACAAAGTGTGTTATAGAGGACACATGGTTTATACTC | 660 | | | | | | | | | | | | | | | | |
| QY | 711 | AAGCTTGCTAATATATGTGGTAAAGCTTGTATGAAGCTATTGGATAGATGTAAGAGATT | 770 | | | | | | | | | | | | | | | | |
| Db | 661 | AAGCTTGCTAATATATGTGGTAAAGCTTGTATGAAGCTATTGGATAGATGTAAGAGATT | 720 | | | | | | | | | | | | | | | | |
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| Db | 721 | ATTTGCAAGTCTAATGTAGATATGGTTAGTCTTGAAAGTCAATTCGCCGAAGAGCTTGT | 780 | | | | | | | | | | | | | | | | |
| QY | 831 | AAAGAGATAATTGATAGACGTAAGAGCCTTGGTTTGGAGGTACCTAAAGTAAGAAACAT | 890 | | | | | | | | | | | | | | | | |
| Db | 781 | AAAGAGATAATTGATAGACGTAAGAGCCTTGGTTTGGAGGTACCTAAAGTAAGAAACAT | 840 | | | | | | | | | | | | | | | | |
| QY | 891 | GTCCTGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTG | 950 | | | | | | | | | | | | | | | | |
| Db | 841 | GTCCTGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTG | 900 | | | | | | | | | | | | | | | | |

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| QY | 951 | AAAGAGATACACCAATCTAGATGATCGGTGTCCTTTCAATTCGCTGTTGCATATTGC | 1010 | | | | | | |
| DB | 901 | AAAGAGATACACCAATCTAGATGATCGGTGTCCTTTCAATTCGCTGTTGCATATTGC | 960 | | | | | | |
| QY | 1011 | AATGTGAAGACCGCAACAGACTTTTAAACTTTGATCTTCGCGATGTCAACCATAGGAAT | 1070 | | | | | | |
| DB | 961 | AATGTGAAGACCGCAACAGACTTTTAAACTTTGATCTTCGCGATGTCAACCATAGGAAT | 1020 | | | | | | |
| QY | 1071 | CCGAGGGATATACGGTCTTCATGTTGCTCGATGCGGAAGGAGCCACAATTGATACTA | 1130 | | | | | | |
| DB | 1021 | CCGAGGGATATACGGTCTTCATGTTGCTCGATGCGGAAGGAGCCACAATTGATACTA | 1080 | | | | | | |
| QY | 1131 | TCTCTATTGGAAAAAGTGGCAAGTCATCAGAACCACTTTGGAAAGGTAGAACCGCACTC | 1190 | | | | | | |
| DB | 1081 | TCTCTATTGGAAAAAGTGGCAAGTCATCAGAACCACTTTGGAAAGGTAGAACCGCACTC | 1140 | | | | | | |
| QY | 1191 | ATGATCGCAAAAACAGCCACTATGCGGTTGAATTAATAATATATCCCGAGCAATGCAAG | 1250 | | | | | | |
| DB | 1141 | ATGATCGCAAAAACAGCCACTATGCGGTTGAATTAATAATATATCCCGAGCAATGCAAG | 1200 | | | | | | |
| QY | 1251 | CATTCTCTCAAAGGCGCACTATGTGTAGAAATPACTAGAGCAAGAGACAAACGAGAACAA | 1310 | | | | | | |
| DB | 1201 | CATTCTCTCAAAGGCGCACTATGTGTAGAAATPACTAGAGCAAGAGACAAACGAGAACAA | 1260 | | | | | | |
| QY | 1311 | ATTCTAGAGATGTTCCCTCCCTCTTTGCAGTGCAGCGCGGATGAATTTGAAGATGACGCTG | 1370 | | | | | | |
| DB | 1261 | ATTCTAGAGATGTTCCCTCCCTCTTTGCAGTGCAGCGCGGATGAATTTGAAGATGACGCTG | 1320 | | | | | | |
| QY | 1371 | CTCGATCTTTGAAAATAGAGTTGCACTTGCTCAACGCTCTTTTCCCAACGAGACCAAGCT | 1430 | | | | | | |
| DB | 1321 | CTCGATCTTTGAAAATAGAGTTGCACTTGCTCAACGCTCTTTTCCCAACGAGACCAAGCT | 1380 | | | | | | |
| QY | 1431 | GCAATGGAGATCGCCGAAATGAAGGGAACATGTGAGTTTCATAGTGAAGTCTGAGGCT | 1490 | | | | | | |
| DB | 1381 | GCAATGGAGATCGCCGAAATGAAGGGAACATGTGAGTTTCATAGTGAAGTCTGAGGCT | 1440 | | | | | | |
| QY | 1491 | GACCGTCTCAGTGTGAGAGAGACATCACCGGTGTAAAGATAGCACTTTTCAGAATC | 1550 | | | | | | |
| DB | 1441 | GACCGTCTCAGTGTGAGAGAGACATCACCGGTGTAAAGATAGCACTTTTCAGAATC | 1500 | | | | | | |
| QY | 1551 | CTAGAAGAGCATCAAAAGTAGACTTAAAGCGCTTTCTTAAACCGTGGAACTCGGGAACGA | 1610 | | | | | | |
| DB | 1501 | CTAGAAGAGCATCAAAAGTAGACTTAAAGCGCTTTCTTAAACCGTGGAACTCGGGAACGA | 1560 | | | | | | |
| QY | 1611 | TTCCTCCCGCGCTTTCGGCAGTGTGTCAGCAGATTTAAGATGTGAGGACTTGACTCAA | 1670 | | | | | | |
| DB | 1561 | TTCCTCCCGCGCTTTCGGCAGTGTGTCAGCAGATTTAAGATGTGAGGACTTGACTCAA | 1620 | | | | | | |
| QY | 1671 | CTGGCTTCGGGAGAGACGACACTGCTGAGAACGACTACAAAAGAACGAAAGGTACATG | 1730 | | | | | | |
| DB | 1621 | CTGGCTTCGGGAGAGACGACACTGCTGAGAACGACTACAAAAGAACGAAAGGTACATG | 1680 | | | | | | |
| QY | 1731 | GAATACAAAGAGACACTTAAAGAGGCTTTTAGTGAGGACAAATTTGGAATTAGGAAATTCG | 1790 | | | | | | |
| DB | 1681 | GAATACAAAGAGACACTTAAAGAGGCTTTTAGTGAGGACAAATTTGGAATTAGGAAATTCG | 1740 | | | | | | |
| QY | 1791 | TCCCTGACAGATTCGACTTCTTCCACATCGAAATCAACCGGTGGAAAGGCTTACCGT | 1850 | | | | | | |
| DB | 1741 | TCCCTGACAGATTCGACTTCTTCCACATCGAAATCAACCGGTGGAAAGGCTTACCGT | 1800 | | | | | | |
| QY | 1851 | AAACTCTCATCGTCTGCGGTGAGACTCTGCTCTTGTAGTGAATTTTGTGCTGACCAT | 1910 | | | | | | |
| DB | 1801 | AAACTCTCATCGTCTGCGGTGAGACTCTGCTCTTGTAGTGAATTTTGTGCTGACCAT | 1860 | | | | | | |
| QY | 1911 | ATAATTTCTGTTTTCATGATGACTGTAACTGTTTATGCTCTATCGTTGGCGTCATAGTTT | 1970 | | | | | | |
| DB | 1861 | ATAATTTCTGTTTTCATGATGACTGTAACTGTTTATGCTCTATCGTTGGCGTCATAGTTT | 1920 | | | | | | |
| QY | 1971 | CGCTCTTCGTTTTCGCAATTCGTGATTAATTTGTCGAGGTGTCGTTCAACAACAAATGTTGA | 2030 | | | | | | |
| DB | 1921 | CGCTCTTCGTTTTCGCAATTCGTGATTAATTTGTCGAGGTGTCGTTCAACAACAAATGTTGA | 1980 | | | | | | |
| QY | 2031 | ACAAATTTGAACCAATGGTATACAGATTTGTA | 2061 | | | | | | |


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DEFINITION Sequence 1 from patent US 5986082.
ACCESSION AR087501
VERSION AR087501.1 GI:10014264
KEYWORDS
SOURCE Unknown.
ORGANISM Unknown.
REFERENCE 1 (bases 1 to 5655)
AUTHORS Uknes, S. Joseph, Hunt, M. Denise, Steiner, H. and Ryals, J. Andrew.
TITLE Altered forms of the NIM1 gene conferring disease resistance in plants
JOURNAL Patent: US 5986082-A 1 16-NOV-1999;
FEATURES Location/Qualifiers
source 1. 5655
BASE COUNT 1758 a 1014 c 1069 g 1814 t
ORIGIN
Query Match 83.7%; Score 1760; DB 6; Length 5655;
Best Local Similarity 87.5%; Pred. No. 0;
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| LOCUS | ATU87794 | 5655 bp | linear |
| DEFINITION | Arabidopsis thaliana transcription factor inhibitor I kappa B homolog (nim1) gene, complete cds. | | |
| ACCESSION | U87794 | | |
| VERSION | U87794.1 | GI:1916911 | |
| KEYWORDS | | | |
| SOURCE | thale cress. | | |
| ORGANISM | Arabidopsis thaliana | | |
| REFERENCE | | | |
| AUTHORS | EuKaryote; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis. 1 (bases 1 to 5655) | | |
| | Ryals,J., Weymann,K., Lawton,K., Friedrich,L., Ellis,D., Steiner,H.-Y., Johnson,J., Delaney,T.P., Jesse,T., Vos,P. and Uknes,S. | | |
| TITLE | The Arabidopsis NIM1 protein shows homology to the mammalian transcription factor inhibitor I kappa B | | |
| JOURNAL | plant Cell 9 (3), 425-439 (1997) | | |
| MEDLINE | 97246324 | | |
| REFERENCE | 2 (bases 1 to 5655) | | |
| AUTHORS | Ryals,J., Weymann,K., Lawton,K., Friedrich,L., Ellis,D., Steiner,H.-Y., Johnson,J., Delaney,T.P., Jesse,T., Vos,P. and Uknes,S. | | |
| TITLE | Direct Submission | | |

JOURNAL Submitted (29-JAN-1997) Fungicides, Novartis BGC, 3054 Cornwallis
Road, Research Triangle Park, NC 27709, USA

FEATURES Location/Qualifiers

1. 5655

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1758 a 1014 c 1069 g 1814 t

BASE COUNT
ORIGIN

| Query Match | 83.7% | Score 1760; | DB 8; | Length 5655; | |
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| Matches 2088; | Conservative | 0; | Pred. No. 0; | | |
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| Db | 3175 | CTGTTTTCGCTTATGTTTACAGCAGCAGATGAGACCGCGGCTTAAAGGAGTTTCTGAAT | 3234 | | |

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|----|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Db | 4315 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

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|-----------------------|-----------------|--|-----------|--------------|
| Query Match | 76.3% | Score 1605; | DB 6; | Length 1608; |
| Best Local Similarity | 100.0%; | Pred. No. 0; | | |
| Matches 1605; | Conservative 0; | Mismatches 0; | Indels 0; | Gaps 0; |
| Qy | 51 | GATCTCTTTAAATTTGTGAATTTCAATTCATCGGAACCTGTTGTATGATGGACACACCACCATTTGAT | 110 | |
| Db | 1 | GATCTCTTTAAATTTGTGAATTTCAATTCATCGGAACCTGTTGTATGATGGACACACCACCATTTGAT | 60 | |
| Qy | 111 | GGATTTCGCGGATTCCTTATGAATCAGCAGCACACTAGTTTCGTCGCTACCGGATTAACACCGAC | 170 | |
| Db | 61 | GGATTTCGCGGATTCCTTATGAATCAGCAGCACACTAGTTTCGTCGCTACCGGATTAACACCGAC | 120 | |
| Qy | 171 | TCCTCTATTGTTTATCTGCGCGCGGAAACAAGTACTCACCAGGACCTGATGTATCTGCTCTG | 230 | |
| Db | 121 | TCCTCTATTGTTTATCTGCGCGCGGAAACAAGTACTCACCAGGACCTGATGTATCTGCTCTG | 180 | |
| Qy | 231 | CAATTGCTCTCAACAGCTTCGAATCCGCTCTTGGACTCGCCGGATGATTCTTACAGCGAC | 290 | |
| Db | 181 | CAATTGCTCTCAACAGCTTCGAATCCGCTCTTGGACTCGCCGGATGATTCTTACAGCGAC | 240 | |
| Qy | 291 | GCTAAGCTTGTCTCTCCGACGCGCGGGAAGTTCTTTCCACCGGTGCGTTTGTFCAGCG | 350 | |
| Db | 241 | GCTAAGCTTGTCTCTCCGACGCGCGGGAAGTTCTTTCCACCGGTGCGTTTGTFCAGCG | 300 | |
| Qy | 351 | AGAAGCTCTTTCTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAAGACTCCCAACAC | 410 | |
| Db | 301 | AGAAGCTCTTTCTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAAGACTCCCAACAC | 360 | |
| Qy | 411 | ACCGCGCGCTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGAT | 470 | |
| Db | 361 | ACCGCGCGCTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGAT | 420 | |
| Qy | 471 | TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCTTAAGGA | 530 | |
| Db | 421 | TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCTTAAGGA | 480 | |
| Qy | 531 | GTTTCTGAATGSCACACGAGAAATGCTGCCACGTGGCTTGCCTGCGCGCGGTGGATTTC | 590 | |
| Db | 481 | GTTTCTGAATGSCACACGAGAAATGCTGCCACGTGGCTTGCCTGCGCGCGGTGGATTTC | 540 | |
| Qy | 591 | ATGTTGGAGTTCCTTATTTGGCTTTCATCTTCAAGATCCCTGAATTAATTAATCTCTAT | 650 | |
| Db | 541 | ATGTTGGAGTTCCTTATTTGGCTTTCATCTTCAAGATCCCTGAATTAATTAATCTCTAT | 600 | |
| Qy | 651 | CAGAGCAGCTTATGACAGCTGTAGACAAAGTTGTTATAGAGACACATTGGTTATACTC | 710 | |
| Db | 601 | CAGAGCAGCTTATGACAGCTGTAGACAAAGTTGTTATAGAGACACATTGGTTATACTC | 660 | |
| Qy | 711 | AAGCTTGTCTAATATATGTTGAAGCTTGTATGAAGCTATTGGATAGATGTAAGAGATT | 770 | |
| Db | 661 | AAGCTTGTCTAATATATGTTGAAGCTTGTATGAAGCTATTGGATAGATGTAAGAGATT | 720 | |
| Qy | 771 | ATTGTCGAAGTCTAATGTAGATATGGTTAGTCTTTGAAAGTCATTGCCGGAAGCTTGT | 830 | |
| Db | 721 | ATTGTCGAAGTCTAATGTAGATATGGTTAGTCTTTGAAAGTCATTGCCGGAAGCTTGT | 780 | |
| Qy | 831 | AAAGAGATAATTGATACAGCTTAAGAGCTTGGTTGGAGTACCTAAAGTAAAGAAACAT | 890 | |
| Db | 781 | AAAGAGATAATTGATACAGCTTAAGAGCTTGGTTGGAGTACCTAAAGTAAAGAAACAT | 840 | |
| Qy | 891 | GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTGAAGTTGCTTTG | 950 | |
| Db | 841 | GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTGAAGTTGCTTTG | 900 | |
| Qy | 951 | AAAGAGGATCACACCAATCTAGATGATGCGTGTCTCTTCATTTCCGTCATATTCG | 1010 | |
| Db | 901 | AAAGAGGATCACACCAATCTAGATGATGCGTGTCTCTTCATTTCCGTCATATTCG | 960 | |
| Qy | 1011 | AATGTGAAGACCGCAACAGATCTTTTAAACTTATGATCTTCCCGATGTCAACACCATAG | 1070 | |
| Db | 961 | AATGTGAAGACCGCAACAGATCTTTTAAACTTATGATCTTCCCGATGTCAACACCATAG | 1020 | |
| Qy | 1071 | CCGAGGGGATATACGGTCTTCATGTTGCTGCGATCGGAAGGAGCCAACTTGTACTA | 1130 | |

[illegible]

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|---|--|---|-------|--------|--|--|--|--|
| Db | 1202 | CTCAACTGGCTTGGGAGAAGACGACACTGCTGAGAAACGACTACAAAGAAGCAAAAGGT | 1261 | | | | | |
| Qy | 1726 | ACATGGAAATACAAGACACTAAAGAAGGCGCTTTAGTGAGGACAAATTTGGAATTAGGAA | 1785 | | | | | |
| Db | 1262 | ACATGGAAATACAAGACACTAAAGAAGGCGCTTTAGTGAGGACAAATTTGGAATTAGGAA | 1321 | | | | | |
| Qy | 1786 | ATTGCGTCCCTGACAGATTGCGACTTCTTCCACATCGAATCAACCGGTGGAAGAGGTCTA | 1845 | | | | | |
| Db | 1322 | ATTGTCCTGACAGATTGCGACTTCTTCCACATCGAATCAACCGGTGGAAGAGGTCTA | 1381 | | | | | |
| Qy | 1846 | ACCGTAACCTCTCATCGTCGTCGGTGAGACTCTTGCCCTCTTAGTGTAATTTTGGTGT | 1905 | | | | | |
| Db | 1382 | ACCGTAACCTCTCATCGTCGTCGGTGAGACTCTTGCCCTCTTAGTGTAATTTTGGTGT | 1441 | | | | | |
| Qy | 1906 | ACCATAAATTTCTGTTTTCATGATGACTGTAACCTGTTTATGTCTATCGTTGGCGTCATAT | 1965 | | | | | |
| Db | 1442 | ACCATAAATTTCTGTTTTCATGATGACTGTAACCTGTTTATGTCTATCGTTGGCGTCATAT | 1501 | | | | | |
| Qy | 1966 | AGTTTCGCTCTTCGTTTTCATGCTGTGTTTATTTGCTGCAGGTGCTCTTCAACAAATG | 2025 | | | | | |
| Db | 1502 | AGTTTCGCTCTTCGTTTTCATGCTGTGTTTATTTGCTGCAGGTGCTCTTCAACAAATG | 1561 | | | | | |
| Qy | 2026 | TTGTAAACAATTTGAACCAATGGTATACAGATTTGTA | 2061 | | | | | |
| Db | 1562 | TTGTAAACAATTTGAACCAATGGTATACAGATTTGTA | 1597 | | | | | |
| RESULT 10 | | | | | | | | |
| AR087506 | | | | | | | | |
| LOCUS | AR087506 | 1194 bp | DNA | linear | | | | |
| DEFINITION | Sequence 13 from patent US 5986082. | | | | | | | |
| ACCESSION | AR087506 | | | | | | | |
| VERSION | AR087506.1 GI:10014269 | | | | | | | |
| KEYWORDS | Unknown. | | | | | | | |
| SOURCE | Unknown. | | | | | | | |
| ORGANISM | Unclassified. | | | | | | | |
| REFERENCE | 1 (bases 1 to 1194) | | | | | | | |
| AUTHORS | Uknes,S.Joseph, Hunt,M.Denise, Steiner,H. and Ryals,J.Andrew. | | | | | | | |
| TITLE | Altered forms of the NIM1 gene conferring disease resistance in plants | | | | | | | |
| JOURNAL | Patent: US 5986082-A 13 16-NOV-1999; | | | | | | | |
| FEATURES | Location/Qualifiers | | | | | | | |
| source | 1. .1194 | | | | | | | |
| BASE COUNT | 351 a | 227 c | 294 g | 322 t | | | | |
| ORIGIN | /organism="unknown" | | | | | | | |
| Query Match 56.5%; Score 1188.4; DB 6; Length 1194; | | | | | | | | |
| Best Local Similarity 99.9%; Pred. No. 2.4e-296; | | | | | | | | |
| Matches 1189; Conservative 0; Mismatches 1; Indels 0; Gaps 0; | | | | | | | | |
| Qy | 466 | TCGATTCGGTTGACATGTTTGGCTTATGTTTACAGCAGACAGATGAGACCGCGCCTA | 525 | | | | | |
| Db | 2 | TGGATTCGGTTGACATGTTTGGCTTATGTTTACAGCAGACAGATGAGACCGCGCCTA | 61 | | | | | |
| Qy | 526 | AAGGAGTTTCTGAATGGCAGACGAGAATTGCTGCCACGGCTTCCCGCGCGGGTGG | 585 | | | | | |
| Db | 62 | AAGGAGTTTCTGAATGGCAGACGAGAATTGCTGCCACGGCTTCCCGCGCGGGTGG | 121 | | | | | |
| Qy | 586 | ATTTTCATGTTGGAGTTTCTCTATTGGCTTTCATCTTCAAGATCCCTGAATTAATTACTC | 645 | | | | | |
| Db | 122 | ATTTTCATGTTGGAGTTTCTCTATTGGCTTTCATCTTCAAGATCCCTGAATTAATTACTC | 181 | | | | | |
| Qy | 646 | TCTATCAGAGCACTTATGGACGTTGTAGACAAAGTTGTTATAGAGACACATTTGGTTA | 705 | | | | | |
| Db | 182 | TCTATCAGAGCACTTATGGACGTTGTAGACAAAGTTGTTATAGAGACACATTTGGTTA | 241 | | | | | |
| Qy | 706 | TACTCAAGCTTGTCTAATATATGTTGTTAAAGCTTGTATGAAGCTATTGGATAGATGTAAG | 765 | | | | | |
| Db | 242 | TACTCAAGCTTGTCTAATATATGTTGTTAAAGCTTGTATGAAGCTATTGGATAGATGTAAG | 301 | | | | | |

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|------------|---|--|------|--------|
| Qy | 766 | AGATTATTGCTCAAGTCTAATGTAGATATGGTTAGTCTTTGAAAAGTCATTTGCCGGAAGAGC | 825 | |
| Db | 302 | AGATTATTGCTCAAGTCTAATGTAGATATGGTTAGTCTTTGAAAAGTCATTTGCCGGAAGAGC | 361 | |
| Qy | 826 | TTGTTTAAAGAGATAATTGATAGACGTTAAAGAGCTTTGGTTTGGAGGTACCTTAAAGTAAAGA | 885 | |
| Db | 362 | TTGTTTAAAGAGATAATTGATAGACGTTAAAGAGCTTTGGTTTGGAGGTACCTTAAAGTAAAGA | 421 | |
| Qy | 886 | AAATGCTGCTCGAATGTACATAAGGCACCTTGACTCGGATGATATAGTTAGTCAAGTTGC | 945 | |
| Db | 422 | AAATGCTGCTCGAATGTACATAAGGCACCTTGACTCGGATGATATAGTTAGTCAAGTTGC | 481 | |
| Qy | 946 | TTTTGAAAGAGATCACACCAATCTAGATGATGCTGTGCTCTTTCATTTTCGCTGTTCGAT | 1005 | |
| Db | 482 | TTTTGAAAGAGATCACACCAATCTAGATGATGCTGTGCTCTTTCATTTTCGCTGTTCGAT | 541 | |
| Qy | 1006 | ATTGCAATGTGAAGACCGCAACAGATCTTTTAAACTTTGATCTTCCCGATGTCACACCAT | 1065 | |
| Db | 542 | ATTGCAATGTGAAGACCGCAACAGATCTTTTAAACTTTGATCTTCCCGATGTCACACCAT | 601 | |
| Qy | 1066 | GGAATCCGAGGGGATATACGGTCTTCATGTTGCTGCGATGCGGAAGGAGGCACAAATTGA | 1125 | |
| Db | 602 | GGAATCCGAGGGGATATACGGTCTTCATGTTGCTGCGATGCGGAAGGAGGCACAAATTGA | 661 | |
| Qy | 1126 | TACTATCTCTATTGGAAGAGGTGCAAGTGCATCAGAGCAACTTTTGGAAAGGTAGAACC | 1185 | |
| Db | 662 | TACTATCTCTATTGGAAGAGGTGCAAGTGCATCAGAGCAACTTTTGGAAAGGTAGAACC | 721 | |
| Qy | 1186 | CACTCATGATCGCAAAACAAGCCACTATGCGGGTTGAATGTAATAATATCCCGAGCAAT | 1245 | |
| Db | 722 | CACTCATGATCGCAAAACAAGCCACTATGCGGGTTGAATGTAATAATATCCCGAGCAAT | 781 | |
| Qy | 1246 | GCAAGCATTTCTCTCAAAGCCGCACTATGTTGTAAGAAATCTAGAGCAAGAACAACGAG | 1305 | |
| Db | 782 | GCAAGCATTTCTCTCAAAGCCGCACTATGTTGTAAGAAATCTAGAGCAAGAACAACGAG | 841 | |
| Qy | 1306 | AACAAATTCCTTAGAGATGTTCTCCCTCTTTTGGAGTGGCGCCGATGAATTTGAAGATGA | 1365 | |
| Db | 842 | AACAAATTCCTTAGAGATGTTCTCCCTCTTTTGGAGTGGCGCCGATGAATTTGAAGATGA | 901 | |
| Qy | 1366 | CGCTGCTCGATCTTGAATAATAGAGTTGCACCTTGCTCAACGCTTTTCCACGGAAGCAC | 1425 | |
| Db | 902 | CGCTGCTCGATCTTGAATAATAGAGTTGCACCTTGCTCAACGCTTTTCCACGGAAGCAC | 961 | |
| Qy | 1426 | AAGCTGCAATGGAGATCGCCGAAATGAAGGGAACATGTGAGTTTCATAGTACTAGCCCTCG | 1485 | |
| Db | 962 | AAGCTGCAATGGAGATCGCCGAAATGAAGGGAACATGTGAGTTTCATAGTACTAGCCCTCG | 1021 | |
| Qy | 1486 | AGCCTGACCGTCTCACTGGTACGAAGAACATCACCGGGGTGTAAGATAGACACCTTTCA | 1545 | |
| Db | 1022 | AGCCTGACCGTCTCACTGGTACGAAGAACATCACCGGGGTGTAAGATAGACACCTTTCA | 1081 | |
| Qy | 1546 | GAATCCTAGAAGAGCATCAAGTAGACTAAAAGCCCTTTCTAAAACCGTGGNACTCGGGA | 1605 | |
| Db | 1082 | GAATCCTAGAAGAGCATCAAGTAGACTAAAAGCCCTTTCTAAAACCGTGGNACTCGGGA | 1141 | |
| Qy | 1606 | AACGATTTCTCCCGCGCTGTTCCGCGAGTGCCTCGACAGATTAATGAACGTGT | 1655 | |
| Db | 1142 | AACGATTTCTCCCGCGCTGTTCCGCGAGTGCCTCGACAGATTAATGAACGTGT | 1191 | |
| RESULT 11 | | | | |
| AR087507 | | | | |
| LOCUS | AR087507 | 786 bp | DNA | linear |
| DEFINITION | Sequence 15 from patent US 5986082. | | | |
| ACCESSION | AR087507 | | | |
| VERSION | AR087507.1 GI:10014270 | | | |
| KEYWORDS | Unknown. | | | |
| SOURCE | Unknown. | | | |
| ORGANISM | Unclassified. | | | |
| REFERENCE | 1 (bases 1 to 786) | | | |
| AUTHORS | Uknes,S.Joseph, Hunt,M.Denise, Steiner,H. and Ryals,J.Andrew. | | | |

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| TITLE | | | | | | | | | | Altered forms of the NIM1 gene conferring disease resistance in plants | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JOURNAL | | | | | | | | | | Patent: US 5986082-A 15 16-NOV-1999; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FEATURES | | | | | | | | | | Location/Qualifiers | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| source | | | | | | | | | | 1. 786 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BASE COUNT | | | | | | | | | | 221 a 136 c 200 g 229 t | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ORIGIN | | | | | | | | | | /organism="unknown" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Best Local Similarity | | | | | | | | | | 99.9%; Pred. No. 4.3e-191; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Matches 782; | | | | | | | | | | Conservative 0; Mismatches 1; Indels 0; Gaps 0; | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| DEFINITION | Arabidopsis thaliana DNA chromosome 4, BAC clone F20B18 (ESSA project). | | |
| ACCESSION | AL049483 | | |
| VERSION | AL049483.1 | GI:4538918 | thale cress. Arabidopsis thaliana Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis. 1 (bases 1 to 104738) Bevan,M., Rose,M., Hempel,S., Entian,K.-D., Hohelsel,J., Mewes,H.W., Mayer,K.F.X. and Schueller,C. Unpublished 2 (bases 1 to 104738) EU Arabidopsis sequencing,project. Direct Submission Submitted (18-MAR-1999) MIPS, at the Max-Planck-Institut fuer Biochemie, Am Klopferspitz 18a, D-82152 Martinsried, FRG, E-mail: schueller@mips.biochem.mpg.de,mayer@mips.biochem.mpg.de Project Coordinator: Mike Bevan, Molecular Genetics Department, Cambridge Laboratory, John Innes Centre, Colney Lane, NR4 7UJ Norwich, UK, E-mail: michael.bevan@bbsrc.ac.uk Information on performance of analysis and a more detailed annotation of this entry and other sequences of chromosome 4 can be viewed at: http://websvr.mips.biochem.mpg.de/proj/thal/. |
| KEYWORDS | | | |
| SOURCE | | | |
| ORGANISM | | | |
| REFERENCE | | | |
| AUTHORS | | | |
| JOURNAL | | | |
| REFERENCE | | | |
| AUTHORS | | | |
| TITLE | | | |
| JOURNAL | | | |
| COMMENT | | | |
| FEATURES | Location/Qualifiers | | |
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QELADVSCSRDHLVESPTQLFLWKYGGEDLEIDNTTLYNWKFMVPEKEGES
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gene

CDS

intron

exon

intron

exon

intron

exon

gene

exon

gene

CDS

Query Match

Best Local Similarity

Matches 1304; Conservative

0; Mismatches 426; Indels 282; Gaps 8;

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Db 74243

Qy 158

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Qy 218

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Qy 278

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Arabidopsis thaliana"

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GSDVLSCKPFSOSSSEWINTSVGHPSSTLYSKNNKFLSVSPSGTLYLWLDHF

DEDDVRPYSYLYFREDPLRLRYKMDLEDYIWRFTDHLAELPSGEHFLVKNFFKDV

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8449..8652,8754..8831,9062..9127,9216..9332,9408..9521,

9598..9725,9822..9960,10052..10149,10227..10296,

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8449..8652,8754..8831,9062..9127,9216..9332,9408..9521,

9598..9725,9822..9960,10052..10149,10227..10296,

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/notes="similarity to synapse-enriched clathrin adaptor

protein LAP - Drosophila melanogaster, PID:g4160434

Query Match

Best Local Similarity

Matches 1304; Conservative

0; Mismatches 426; Indels 282; Gaps 8;

Qy 98

Db 74243

Qy 158

Db 74303

Qy 218

Db 74357

Qy 278

Db 74417

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| QY | 338 | CGTTTGTGCAGGAGAGCTCTTCTTCAAGAGCGCTTTAGCCGCCCTCAAGAGAGAA | 397 | QY | 1345 | CGGCCGATGAATTGAAGATGACGCTGCTCGATCTTGAA-- | 1384 |
| Db | 74477 | TAATCTCCGGAGATCTCTGCTTCAAAAGCGCTTTAGCCACCCTGAGGAACAAA | 74536 | Db | 75548 | CTCCAGAGGAGTTGAGGATGAGGTTGCTCTATTATGAACCGGATGCTTTCTTCCT | 75607 |
| QY | 398 | AGACTCCAACACACCGCCCGTGAAGCTGAGCTTTAAGGAGATGCCAAGGATTACGA | 457 | QY | 1385 | -----TAGAGTTGCACTTGCTCAACGCTTTTTCACACGGAAGCACAAAGTGAATGGAG | 1439 |
| Db | 74537 | ATCCTCCA-----CCACCGTAGAGCTCCAGCTAAAAGATGCCAGAGATTACGA | 74587 | Db | 75668 | TACTTTTCAGTTGCATTTGCTCGACTTCTCTTCCAGTGGAACCTGAACTGTACAGGT | 75727 |
| QY | 458 | AGTCGGTTTCGATTCGGTTGTGACTGTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACC | 517 | QY | 1440 | ATFCGCCAAATGAAGGGAACATGTAGTTTCATAGTACGCTCAGCCTCGAGCCTGCTC | 1499 |
| Db | 74588 | AGTCGGCTTGACTCGGTTGTGGCGTTTTCGCGTATGTTTACAGCGCAGAGTGAGTTC | 74647 | Db | 75728 | ATTGCCAAATTTGGAGGAACATGCGAGTTTACAGCTTCTAGTCTCGAGCTGATCATC | 75787 |
| QY | 518 | GCCGCTCAAGAGGTTTCTGAATGCGCAGACGAGAATGTCTGCCAGTGGCTTCCGGCC | 577 | QY | 1500 | ACTGCTACGAAGAGAACATCACCGGGTGTAAAGATAGCACCTTTTCAGAATCCTAGAGAG | 1559 |
| Db | 74648 | CCCGCCGAAGGAGCTTCTGCTTGGGTAGACGAGCAATGTTTGCACGCTTCCCGGTC | 74707 | Db | 75788 | ATTGCTGAAGAGCGGACATCATAGACCTAAATATGCGCGGTTCCCAAATCCATGAGAAG | 75847 |
| QY | 578 | GCGGTGGATTCATGTTGGAGGTTCTATTTGGCTTTCATCTCAAGATCCCTGAAT | 637 | QY | 1560 | CATCAAGTAGACTAAAAGCGCTTTCTAAAC-- | 1592 |
| Db | 74708 | AAAGTGGATTCATGTTGGAGGTTCTTTATCTGTCTTTCGTTTCCAGATTCAAGAAT | 74767 | Db | 75848 | CATTTGAGTAGACTAAGAGCACTTTGTAAAACCGGTATGGATTGATTCTTATATGTCATC | 75907 |
| QY | 638 | AATTACTCTCTA-----CCACCGTAGAGCTCCACATAATCTCATTTGACTCATAACATCATC | 649 | QY | 1593 | -----GTGGA | 1597 |
| Db | 74768 | AGTTACTCTGTATGAGGTAAAACACAATCCACATAATCTCATTTGACTCATAACATCATC | 74827 | Db | 75908 | TCCTTTCTAGCCAAACAAATGATGTTTAGAACTTATTTTCTTGTATCTTCAGTGA | 75967 |
| QY | 650 | -----TCAGAGCGCACTTATTGGAGGTTGTAGACAAAGTTCTGTA | 687 | QY | 1598 | ACTCGGAAACGATTTTCCCGCGCTGTTCCGCGAGTGTCCAGCAGATTTATGAACCTGGA | 1657 |
| Db | 74828 | TTAAGTCTCCTGTTTTCATCTTTCAGAGGCGAGTTCTTGGAATTTGTAGACAAAGTTCTAG | 74887 | Db | 75968 | ACTGGGAAACGCTACTTCTCAACGATGTTCT-----GCTTGATCATTATTTGGATACTGA | 76021 |
| QY | 688 | TAGAGACACATTTGGTTTACTCAAGCTTGTCTAATATATGTTGGTAAAGCTTGTATGAAGC | 747 | QY | 1658 | GCAGTTGACTCAACTGCGCTTCCGGAGAGACGACACTGCTGAGAAACGACTTACAAAAGAA | 1717 |
| Db | 74888 | TCAAGACATCTTGGTTATATCAAGCTTGATCTATGTTGTACAAATACAAAGAACG | 74947 | Db | 76022 | GCAGTTGATCATCTTGTAGCTAGAGAGAGATACCTCTGAGAAACGCTTACAAAAGAA | 76081 |
| QY | 748 | TATTGATAGATGAAGAGATATTGTCAAGTCTTAATGTAGATATGTTAGTCTTGA | 807 | QY | 1718 | GCAAGGTACATGGAATACAGAGACACTAAAGAGCGCTTTAGTGAGGACAATTTGGA | 1777 |
| Db | 74948 | TTTGGATAGATGCATAGAAATATTCGTAAGTCTGTATAGAACTAGTGTAGTCTTGAGA | 75007 | Db | 76082 | GCAAGGTACATGGAATACAGAGACACTCTGATGAAGACCTTTAGTGAGGACAAGGAGA | 76141 |
| QY | 808 | AGTCATTCGCGGAGAGCTTGTAAAGAGATAATTTGATAGACGTAAAGAGCTTGGTTTG | 867 | QY | 1778 | ATTAGAAATTCGTCCTCGACAGATTCGACTTCTTCCACATCGAAATCAACCGGTGAAA | 1837 |
| Db | 75008 | AGCTTTTACCTCAACACATTTTCAAGCAAAATCATAGACATCCGCGAAGCGCTCTGTCTAG | 75067 | Db | 76142 | ATGTGGA-- | 76180 |
| QY | 868 | AGTACTTAAGTAAGAAACATGTTCTGAATGTACATTAAGGCATCTGACTCGATGATA | 927 | QY | 1838 | GAGGTCTAACCTTAACCTCTCTCATCGTCGTC | 1869 |
| Db | 75068 | AGCCACTTAACCTAGAAAGCATGTCAAGAACATATACAGGCGCTAGACTCAGATGATG | 75127 | Db | 76181 | GAGGTCTAATAGAAAACCTCTCTCACCGCGGC | 76212 |
| QY | 928 | TTGAGTTAGTCAAGTTGCTTTTGAAGAGAGATCAACCAATCTAGATGATCGGTGCTC | 987 | RESULT 13 | | | |
| Db | 75128 | TTGAGCTTGCAAGATGCTTTTGTAGAGGACACACCAATCTCGATGAGCGGTATGCTC | 75187 | ATCHRIV64 | | | |
| QY | 988 | TTCAATTCGCTGTGCAATTCGAATGTGAAGACCGCAACAGATCTTTTAAACTTTGATC | 1047 | LOCUS | ATCHRIV64 | 196286 bp | DNA linear |
| Db | 75188 | TTCAATTTTGTCTATCGCTCACTCGCTGTGAAGACCGGTATGATCTCTCGAGCTTGAGC | 75247 | DEFINITION | Arabidopsis thaliana | DNA chromosome 4, contig fragment No. 64. | PLN 16-MAR-2000 |
| QY | 1048 | TTGCCGATGTCAACCATAGGAATCCGAGGGGATATACGGTGTCTCATGTTCTCGATGTC | 1107 | ACCESSION | AL161564 | | |
| Db | 75248 | TTGCGGATGTAACTTAGAATCCGAGGGGATACATGTGCTTCAATGTTGCTCGGATGC | 75307 | VERSION | AL161564.2 | GI:7269427 | |
| QY | 1108 | GGAAGAGCCAAATGATCTATCTTATTTGGAAGAGTGAAGTGCATCAGAGCA | 1167 | KEYWORDS | thale cress. | | |
| Db | 75308 | GGAAGAGCCGGAAGTTGATAATATCTTTGTTAATGAAAGGGCAATATTTTAGACACAA | 75367 | SOURCE | Arabidopsis thaliana | | |
| QY | 1168 | CTTTGGAAGTGAACCGCACTCATGTCGCAAAACAGCCACTATGCGGTTCAATGTA | 1227 | ORGANISM | Arabidopsis thaliana | | |
| Db | 75368 | CATTGGATGGTGAACCGCTTTAGTGATTGTAAACGACTCACTAAAGCGGATGACTACA | 75427 | REFERENCE | 1 (bases 77316 to 77804) | | |
| QY | 1228 | ATAATATCCGGAGCAATCAAGCATCTCTCAAAAGCGGATGATGTAGAAAATCTAG | 1287 | AUTHORS | Volckaert,G., Grymonprez,B., Voet,M., Robben,J., Mewes,H.W., Lemcke,K. and Mayer,K.F.X. | | |
| Db | 75428 | AAACTAGTACGGAGGAGCTACGCTCTCTCGAAAGCGGATATGATCATAGAGTACTTG | 75487 | JOURNAL | Unpublished | | |
| QY | 1288 | AGCAAGACAAACAGAGAACAAAT---TCCTAGAGATGTTCCCTCCCTTTTTCAGTGG | 1344 | AUTHORS | Unpublished | | |
| Db | 75488 | AGCATGAACAAACTAGAAATATTTGTCGCTATAGAGGCTTCACTTTCTCTCTCCAGTAA | 75547 | JOURNAL | Unpublished | | |

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|-----------|---|--|--|
| REFERENCE | 4 (bases 1 to 196286) | | |
| AUTHORS | EU Arabidopsis sequencing project. | | |
| TITLE | Direct Submission | | |
| JOURNAL | Submitted (10-MAR-2000) MIPS, at the Max-Planck-Institut fuer Biochemie, Am Klopferspitz 18a, D-82152 Martinsried, FRG, E-mail: lencke@mps.biochem.mpg.de, mayer@mps.biochem.mpg.de Project Coordinator: Mike Bevan, Molecular Genetics Department, Cambridge Laboratory, John Innes Centre, Colney Lane, NR4 7UJ Norwich, UK, E-mail: michael.bevandb@rc.ac.uk | | |
| COMMENT | Information on performance of analysis and a more detailed annotation of this entry and other sequences of chromosomes 3, 4 and 5 can be viewed at: http://www.mips.biochem.mpg.de/proj/thal/ this fragment has an overlap with ATCHRIV63 at the 5' end and an overlap with ATCHRIV65 at the 3' end. | | |
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| | /db_xref="taxon:3702" | | |
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| | /db_xref="GI:7269428" | | |
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| | /db_xref="GI:7269430" | | |
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| | /gene="AT4g25790" | | |
| | /number=2 | | |
| gene | 13985. .16227 | | |
| | /gene="AT4g25800" | | |
| | join(13985. .14010,14239. .14669,14761. .14921,15016. .15219,15390. .15595,15645. .16227) | | |
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| | /note="EST GB:F14385 in 5' untranslated region strong similarity to calmodulin-binding protein (TCB60) - Nicotiana glauca, PID:g1698548 contains EST gb:F14386, F14385, N96168, N96141" | | |


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QY 1593 -----GTGGA 1597
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Db 126593 TCTTTTCTAGCAACAAGAAATGATGTTTAGAACTTTATTTTGTGTATCTTCAGTGGGA 126652
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LOCUS AX351141 1565 bp DNA linear PAT 06-FEB-2002
DEFINITION Sequence 15 from Patent WO0166755.
ACCESSION AX351141
VERSION AX351141.1 GI:18616494
KEYWORDS
SOURCE
ORGANISM
Oryza sativa.
Oryza sativa
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.
1 (sites)
Wang,H.X., Salmeron,J.M., Willits,M.G. and Lawton,K.A.
Monocotyledonous plant genes and uses thereof
Patent: WO 0166755-A 15 13-SEP-2001;
Syngenta Participations AG (CH)
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ORIGIN

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RESULT 15
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LOCUS AX351145 1668 bp DNA linear PAT 06-FEB-2002
DEFINITION Sequence 19 from Patent WO0166755.
ACCESSION AX351145
VERSION AX351145.1 GI:18616498
KEYWORDS
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ORGANISM Triticum aestivum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Pooideae; Triticeae; Triticum.
1 (sites)
Wang,H.X., Salmeron,J.M., Willits,M.G. and Lawton,K.A.
Monocytledonous plant genes and uses thereof
Patent: WO 0166755-A 19 13-SEP-2001;
Syngenta Participations AG (CH)
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BASE COUNT 470 a 328 c 360 g 510 t
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Query Match 15.0%; Score 314.6; DB 6; Length 1668;
Best Local Similarity 57.3%; Pred. No. 2.6e-70;
Matches 688; Conservative 0; Mismatches 474; Indels 39; Gaps 5;

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GenCore version 5.1.3
Copyright (c) 1993 - 2002 CompuGen Ltd.

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Post-processing: Minimum Match 0%

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Listing first 45 summaries

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| | 24 | 578.4 | 27.5 | 1767 | 21 AAV97190 | N. tabacum NIM1 ho |
| | 25 | 578.4 | 27.5 | 2172 | 19 AAV16852 | Nicotiana glutinos |
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| | 41 | 232.6 | 11.1 | 2154 | 21 AAC68800 | Maize NPR1 coding |
| | 42 | 228.6 | 10.9 | 1761 | 21 AAV97193 | A. thaliana NIM1 h |
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| | 44 | 228.2 | 10.8 | 498 | 21 AAV97216 | B. vulgaris NIM1 h |
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ALIGNMENTS

RESULT 1

AAV16851

ID AAV16851 standard; cDNA; 2104 BP.

XX AAV16851;

AC AAV16851;

DT 17-AUG-1998 (first entry)

DE Arabidopsis thaliana acquired resistance gene NPR1.

XX NPR1 gene; acquired resistance; disease; plant pathogens; bacteria;
KW mycoplasma; fungi; insects; nematodes; viruses; viroids;
KW transgenic; ds.

OS Arabidopsis thaliana.

XX Key Location/Qualifiers

FT CDS 93..1874

FT /*tag= a

FT /product= acquired resistance protein

FT /note= NPR1 gene

PN WO9806748-A1.

PD 19-FEB-1998.

PF 08-AUG-1997; 97WO-US13994.

XX 16-MAY-1997; 97US-0046769.

PR 09-AUG-1996; 96US-0023851.

PR 10-JAN-1997; 97US-0035166.

PA (GEHO) GEN HOSPITAL CORP.
PA (UYDU-) UNIV DUKE.
XX Ausubel FM, Cao H, Dong X, Glazebrook J;
XX WPI; 1998-159458/14.
DR P-PSDB; AA46940.
XX New isolated plant acquired resistance polypeptide gene - useful
PT for, e.g. producing plants with increased resistance to pathogens
PT such as bacteria
XX
XX Claim 9; Fig 5; 127pp; English.
XX
CC The sequence is that of the acquired resistance gene NPR1. It may be
CC used in the production of transgenic cells which can produce the encoded
CC acquired resistance protein. Such transgenic plants cells are
CC useful in the production of plants having an increased level
CC of resistance against disease caused by plant pathogens, e.g.
CC bacteria, mycoplasmas, fungi, insects, nematodes, viruses,
CC and viroids.
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Best Local Similarity 100.0%; Pred. No. 0;
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Db 721 ATATATGTGGTAAAGCTTGTATGAAGCTATTGGATAGATGATAAGAGATTATTGTCAAGT 780
QY 781 CTAATGTAGATATGTTAGTCTTGAAGAATCATTCGCGGAAGAGCTTGTAAAGAGATAA 840
Db 781 CTAATGTAGATATGTTAGTCTTGAAGAATCATTCGCGGAAGAGCTTGTAAAGAGATAA 840
QY 841 TTGATAGACGTTAAAGAGCTTGGTTTGGAGGTACCTAAAGTAAAGAAACATGCTCGAATG 900
Db 841 TTGATAGACGTTAAAGAGCTTGGTTTGGAGGTACCTAAAGTAAAGAAACATGCTCGAATG 900
QY 901 TACATAAGGCATCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTGAAGAGGATC 960
Db 901 TACATAAGGCATCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTGAAGAGGATC 960
QY 961 ACACCAATCTAGATGATGCGTCTCTTCATTTCCGTTGTTGCGATATTGCANTGTGAAGA 1020
Db 961 ACACCAATCTAGATGATGCGTCTCTTCATTTCCGTTGTTGCGATATTGCANTGTGAAGA 1020
QY 1021 CGCAACAGATCTTTTAAACTTGATCTTCCGATGTCACCATAGGAATCCGAGGGAT 1080
Db 1021 CGCAACAGATCTTTTAAACTTGATCTTCCGATGTCACCATAGGAATCCGAGGGAT 1080
QY 1081 ATACGGTCTCTCATGTTCTGCGATGCGAAGAGGCCACAAATGATCTATCTATTGG 1140
Db 1081 ATACGGTCTCTCATGTTCTGCGATGCGAAGAGGCCACAAATGATCTATCTATTGG 1140
QY 1141 AAAAGGTGCAAGTGCATCAGAGCAACTTTGGAAGGTAGAACCGCACTCATGATCGCAA 1200
Db 1141 AAAAGGTGCAAGTGCATCAGAGCAACTTTGGAAGGTAGAACCGCACTCATGATCGCAA 1200
QY 1201 ACAAAGCCACTATGCGGTGTAATGTAATATATCCCGAGCAATGCAAGCATCTCTCA 1260
Db 1201 ACAAAGCCACTATGCGGTGTAATGTAATATATCCCGAGCAATGCAAGCATCTCTCA 1260
QY 1261 AAGGCGGACTATGTGTAAGAACTACTAGACAAAGAGACAAACAGAGAACAAATTCCTAGAG 1320
Db 1261 AAGGCGGACTATGTGTAAGAACTACTAGACAAAGAGACAAACAGAGAACAAATTCCTAGAG 1320
QY 1321 ATGTTCTCTCCCTCTTTTGCAGTGGCGCGGATGANTTGAAGTACGCTGCTCGATCTTG 1380
Db 1321 ATGTTCTCTCCCTCTTTTGCAGTGGCGCGGATGANTTGAAGTACGCTGCTCGATCTTG 1380
QY 1381 AAAATAGAGTTGCACTTGCTCAACGCTTTTCCAAACGGAAGCACAAGCTGCAATGGAGA 1440
Db 1381 AAAATAGAGTTGCACTTGCTCAACGCTTTTCCAAACGGAAGCACAAGCTGCAATGGAGA 1440
QY 1441 TCGCGGAAATGAAGGGAACATGTGAGTTTCATAGTACCTAGCCTCGAGCTGACCGCTCTCA 1500
Db 1441 TCGCGGAAATGAAGGGAACATGTGAGTTTCATAGTACCTAGCCTCGAGCTGACCGCTCTCA 1500
QY 1501 CTGGTACGAGAGACATCACCGGTTGTAAGATAGCAGCTTTTCAAGATCTCTAGAGAGC 1560
Db 1501 CTGGTACGAGAGACATCACCGGTTGTAAGATAGCAGCTTTTCAAGATCTCTAGAGAGC 1560
QY 1561 ATCAAAGTACACTAAAGCGCTTTCTTAAACCGTGGAACTCGGGAAACGATTTCCTCCGCG 1620
Db 1561 ATCAAAGTACACTAAAGCGCTTTCTTAAACCGTGGAACTCGGGAAACGATTTCCTCCGCG 1620
QY 1621 GCTGTTCCGAGTGTCTGACAGATTTGAACCTGTGAGGACTTGACTCAACTGGCTTCGG 1680
Db 1621 GCTGTTCCGAGTGTCTGACAGATTTGAACCTGTGAGGACTTGACTCAACTGGCTTCGG 1680
QY 1681 GAGAAGCAGCACTGCTGAGAAACGACTACAAAAGAGCAAAAGGTACATGGAATACAAAG 1740
Db 1681 GAGAAGCAGCACTGCTGAGAAACGACTACAAAAGAGCAAAAGGTACATGGAATACAAAG 1740
QY 1741 AGACACTAAAGAGGCTTTAGTGAGGACAAATTTGGAATTAGGAAATTCGCTCCCTGACAG 1800

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Db 1741 AGACACTAAAGAGGCGCTTTAGTGAGGACAAATTTGGAATTAGGAATTCGTCCTCGACAG 1800
QY 1801 ATTCGACTTCTCCACATCGAATCAACCGGTGGAAGAGGTCTAACCGTAACCTCTCTC 1860
Db 1801 ATTCGACTTCTCCACATCGAATCAACCGGTGGAAGAGGTCTAACCGTAACCTCTCTC 1860
QY 1861 ATTCGCTCGGTGAGACTCTTCCCTCTTAGTGTAAATTTTGTGTGACCATATAATTCGT 1920
Db 1861 ATTCGCTCGGTGAGACTCTTCCCTCTTAGTGTAAATTTTGTGTGACCATATAATTCGT 1920
QY 1921 TTTCATGATGACTGAACCTGTTATGCTATGCTGCGGTGCATATAGTTTCGCTCTTCGT 1980
Db 1921 TTTCATGATGACTGAACCTGTTATGCTATGCTGCGGTGCATATAGTTTCGCTCTTCGT 1980
QY 1981 TTTGATCCTGCTGATTTATTTGCTGAGGTGCTTCAACAAATGTTCTGAACAATTTCGA 2040
Db 1981 TTTGATCCTGCTGATTTATTTGCTGAGGTGCTTCAACAAATGTTCTGAACAATTTCGA 2040
QY 2041 CCAATGGTATACAGATTTGTTAATATATATTTATGTFACATCAACAATAAAAAA 2100
Db 2041 CCAATGGTATACAGATTTGTTAATATATATTTATGTFACATCAACAATAAAAAA 2100
QY 2101 AAAA 2104
Db 2101 AAAA 2104

RESULT 2
AAV46274
ID AAV46274 standard; cdna; 2011 BP.
XX
AC AAV46274;
XX
DT 16-OCT-1998 (first entry)
DE
DE A. thaliana NIM-1 cDNA.
XX
KW NIM-1; noninducible immunity; systemic acquired resistance; SAR;
KW pathogen; disease; protection; immunomodulated; plant; cereal; fruit;
KW vegetable; virus; fungi; bacteria; insect; nematode; microbicide; ss.
XX
OS Arabidopsis thaliana.
FH Key Location/Qualifiers
FT CDS 43..1824
FT /*tag= a
FT /product= NIM-1
XX
PN WO9829537-A2.
XX
PD 09-JUL-1998.
XX
PF 23-DEC-1997; 97WO-EP07253.
XX
PR 10-JAN-1997; 97US-0035024.
PR 27-DEC-1996; 96US-0034378.
XX
PA (NOVS ) NOVARTIS AG.
XX
PI
PI Friedrich LB, Molina Fernandez A, Ryals JA, Uknes SJ;
XX
DR WPI; 1998-388119/33.
DR P-PSDB; AAW64435.
XX
PT Protection of immunomodulated plants against pathogens - comprises
PT applying microbicide to provide increase in resistance
PS Disclosure; Page 112-115; 164pp; English.
XX
CC This cDNA sequence encodes the NIM-1 protein from Arabidopsis thaliana.
CC This protein is used in a method resulting in the protection of an
CC immunomodulated plant having a first level of resistance and involves
CC treatment with at least 1 microbicide that confers a second level of
```

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CC resistance, such that the plants have a third level of resistance greater
CC than the sum of the first two levels. The method can be applied to a wide
CC variety of plants (cereals, fruits, oilseeds, vegetables etc.) to protect
CC against viruses, fungi, bacteria, insects and nematodes. The method
CC provides a high level of resistance and allows a reduction in the amount
CC of microbicide used. Since the process involves two different methods of
CC protection, it is unlikely that the pathogen will develop resistance to
CC the treatment.
XX
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SQ Sequence 2011 BP; 563 A; 417 C; 472 G; 559 T; 0 other;

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Query Match 95.5%; Score 2009.4; DB 19; Length 2011;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 2010; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 51 GATCTCTTTAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACACCACTTGAT 110
Db 1 GATCTCTTTAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCACTTGAT 60

QY 111 GGATTCGCCGATTTCTATGAATCAGACGACATAGTTTGTGCTACCGATAACACCGAC 170
Db 61 GGATTCGCCGATTTCTATGAATCAGACGACATAGTTTGTGCTACCGATAACACCGAC 120

QY 171 TCCTCTATTCTTTATCTGCGCGCGGAACAGTACTCACCGGACCTGATGTATCTGCTCTG 230
Db 121 TCCTCTATTCTTTATCTGCGCGCGGAACAGTACTCACCGGACCTGATGTATCTGCTCTG 180

QY 231 CAATTGCTCTCCAACAGCTTCGAATCCGCTTTTGACTCGCCGGATGATTTCTACACGGAC 290
Db 181 CAATTGCTCTCCAACAGCTTCGAATCCGCTTTTGACTCGCCGGATGATTTCTACACGGAC 240

QY 291 GCTAAGCTTCTCTCTCCGACGCGCGGGAAGTTTCTTCCACCGGTGCGTTTGTGTCAGCG 350
Db 241 GCTAAGCTTCTCTCTCCGACGCGCGGGAAGTTTCTTCCACCGGTGCGTTTGTGTCAGCG 300

QY 351 AGAAGCTCTTTCTTCAAGAGCGCTTTTAGCGCGCGCTTAAGAAGAGAAAGACTCCAACAC 410
Db 301 AGAAGCTCTTTCTTCAAGAGCGCTTTTAGCGCGCGCTTAAGAAGAGAAAGACTCCAACAC 360

QY 411 ACCGCGCGGTGAAGCTCGAGCTTAAGGAGATTGCAAGGATTACGAAGTCGTTTTCGAT 470
Db 361 ACCGCGCGGTGAAGCTCGAGCTTAAGGAGATTGCAAGGATTACGAAGTCGTTTTCGAT 420

QY 471 TCGGTTGTGACTGTTTGTGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCGCTTAAGA 530
Db 421 TCGGTTGTGACTGTTTGTGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCGCTTAAGA 480

QY 531 GTTCTGTAATGCGCAGCAGAGAAATTCGCTCCACGCTTGCGCGCGCGCGGTGGATTTC 590
Db 481 GTTCTGTAATGCGCAGCAGAGAAATTCGCTCCACGCTTGCGCGCGCGCGGTGGATTTC 540

QY 591 ATGTTGGAGGTTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAAATTAATTAATCTCTAT 650
Db 541 ATGTTGGAGGTTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAAATTAATTAATCTCTAT 600

QY 651 CAGAGGCACTTATTTGACGCTTCTAGACAAAGTTGTATAGAGGACACATTTGTTTACTC 710
Db 601 CAGAGGCACTTATTTGACGCTTCTAGACAAAGTTGTATAGAGGACACATTTGTTTACTC 660

QY 711 AAGCTTGCTTAATATATGTTGTTAAAGCTTGTATGAAGCTATTGATGATGATTAAGAGATT 770
Db 661 AAGCTTGCTTAATATATGTTGTTAAAGCTTGTATGAAGCTATTGATGATGATTAAGAGATT 720

QY 771 ATGTGCAAGTCTAATGATAGATGTTAGTCTTTGAAAAGTCAATCCCGGAAGAGCTTGT 830
Db 721 ATGTGCAAGTCTAATGATAGATGTTAGTCTTTGAAAAGTCAATCCCGGAAGAGCTTGT 780

QY 831 AAAGAGATAATGATAGAGCTAAAGAGCTTGTGTTGGAGGTACCTAAAGTAAGAAACAT 890
Db 781 AAAGAGATAATGATAGAGCTAAAGAGCTTGTGTTGGAGGTACCTAAAGTAAGAAACAT 840

QY 891 GTCTCGAATGTACATAAGGCACTTGACTCGGATGATTTAGTTCAGTTCAGTTCGTTTGT 950
Db 841 GTCTCGAATGTACATAAGGCACTTGACTCGGATGATTTAGTTCAGTTCAGTTCGTTTGT 900
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Db 841 GTCTCGAATGTACATAAGGCACTTGACTCGCATGATATTGAGTTAGTCAAGTTGCTTTTG 900
QY 951 AAAGAGGATCACACCAATCTAGATGATCGTGTCTCTTCAATTCGCTGTTCATATTCG 1010
Db 901 AAAGAGGATCACACCAATCTAGATGATCGTGTCTCTTCAATTCGCTGTTCATATTCG 960
QY 1011 AATGTAGAGCGCAACAGATCTTTTAAACTTTGATCTTGGCGATGTCACCAATAGGAAT 1070
Db 961 AATGTGAAGCGCAACAGATCTTTTAAACTTTGATCTTGGCGATGTCACCAATAGGAAT 1020
QY 1071 CGAGGGGATATACGCTGCTTCATCTTCTGCGATGCGGAAGAGGCCACCAATTTGATACTA 1130
Db 1021 CGAGGGGATATACGCTGCTTCATCTTCTGCGATGCGGAAGAGGCCACCAATTTGATACTA 1080
QY 1131 TCTCTATTGGAAAAAGGTGCAAGTGCATCAGAAGCACTTTTGAAGGTAGAACCGCACTC 1190
Db 1081 TCTCTATTGGAAAAAGGTGCAAGTGCATCAGAAGCACTTTTGAAGGTAGAACCGCACTC 1140
QY 1191 ATGATCGCAAAACAGCCACTATGCGGCTTGAATGTAATAATATCCCGAGCAATGCAAG 1250
Db 1141 ATGATCGCAAAACAGCCACTATGCGGCTTGAATGTAATAATATCCCGAGCAATGCAAG 1200
QY 1251 CATTTCTCTAAAGCGCGACTATGTGTAGAAATTAAGTGTAGAGCAAGCAACACGAGAACAA 1310
Db 1201 CATTTCTCTAAAGCGCGACTATGTGTAGAAATTAAGTGTAGAGCAAGCAACACGAGAACAA 1260
QY 1311 ATTCTTAGAGATGTTCTCCCTCTTTTTCAGTGGCGCGCGATGAATTTGAAATGACGCTG 1370
Db 1261 ATTCTTAGAGATGTTCTCCCTCTTTTTCAGTGGCGCGCGATGAATTTGAAATGACGCTG 1320
QY 1371 CTCGATCTTGAATAGAGTTGCACCTTGCTCAACGCTCTTTTCCAAAGCAAGCAACGCT 1430
Db 1321 CTCGATCTTGAATAGAGTTGCACCTTGCTCAACGCTCTTTTCCAAAGCAAGCAACGCT 1380
QY 1431 GCAATGGAGATCGCCGAAATGAAGGGAACATGTAGTTTCATAGTGAAGTTCGAGCCT 1490
Db 1381 GCAATGGAGATCGCCGAAATGAAGGGAACATGTAGTTTCATAGTGAAGTTCGAGCCT 1440
QY 1491 GACCGTCTCACTGTGACGAGAGACATCACCGGTGTAAGATAGCACCTTTTCAGAAATC 1550
Db 1441 GACCGTCTCACTGTGACGAGAGACATCACCGGTGTAAGATAGCACCTTTTCAGAAATC 1500
QY 1551 CTAGAAGAGCATCAAGTAGACTAAAAGCGCTTTCTTAAACCGTGGAACTCGGGAACGA 1610
Db 1501 CTAGAAGAGCATCAAGTAGACTAAAAGCGCTTTCTTAAACCGTGGAACTCGGGAACGA 1560
QY 1611 TTCTTCCCGCGCTGTTCCGCACTGCTGACCAAGATATGAAGTTCGAGCACTTGACTCAA 1670
Db 1561 TTCTTCCCGCGCTGTTCCGCACTGCTGACCAAGATATGAAGTTCGAGCACTTGACTCAA 1620
QY 1671 CTGGCTTGGGAGAACGACACTGCTGAGAAACGACTACAAAAGCAAGGTTACATG 1730
Db 1621 CTGGCTTGGGAGAACGACACTGCTGAGAAACGACTACAAAAGCAAGGTTACATG 1680
QY 1731 GAAATCAAGAGACACTAAGAAAGCGCTTTAGTGAGGACAATTTGGAATTAGAAATTCG 1790
Db 1681 GAAATCAAGAGACACTAAGAAAGCGCTTTAGTGAGGACAATTTGGAATTAGAAATTCG 1740
QY 1791 TCCTTGACAGATCGACTTCTTCCACATCGAAATCAACCGGTGGAAGAGGTCTAACCGT 1850
Db 1741 TCCTTGACAGATCGACTTCTTCCACATCGAAATCAACCGGTGGAAGAGGTCTAACCGT 1800
QY 1851 AAACCTCTCATCGTCTGCGGTGAGACTCTTGCCCTTTAGTGTAAATTTTGTGTACCAT 1910
Db 1801 AAACCTCTCATCGTCTGCGGTGAGACTCTTGCCCTTTAGTGTAAATTTTGTGTACCAT 1860
QY 1911 ATAATCTGTTTTCATGATGACTGTAACTGTTTATCTCTATCTGTCGCTCATATAGTTT 1970
Db 1861 ATAATCTGTTTTCATGATGACTGTAACTGTTTATCTCTATCTGTCGCTCATATAGTTT 1920
QY 1971 CGCTCTTCGTTTTCGATCTCTGTTATTTATGCTGCAAGGTGCTTCCAAACAAATGTTGA 2030
Db 1921 CGCTCTTCGTTTTCGATCTCTGTTATTTATGCTGCAAGGTGCTTCCAAACAAATGTTGA 1980

QY 2031 ACAATTTGACCAATGGTATACAGATTGTGA 2061
Db 1981 ACAATTTGACCAATGGTATACAGATTGTGA 2011

RESULT 3

AAV46275
ID AAV46275 standard; cDNA; 2011 BP.

XX AAV46275;

XX 16-OCT-1998 (first entry)

XX A. thaliana NIM-1 cDNA variant #1.

XX NIM-1; noninducible immunity; systemic acquired resistance; SAR;
KW pathogen; disease; protection; immunomodulated; plant; cereal; fruit;
KW vegetable; virus; fungi; bacteria; insect; nematode; microbicide; ss.
XX Arabidopsis thaliana.
OS Synthetic.

XX Key Location/Qualifiers
FH 43..1824
CDS

FT /*tag= a

FT /product= NIM-1

FT /note= "variant"

FT 205..207

FT /*tag= b

FT /note= "wild type TCC is replaced by GCC"

FT 217..219

FT /*tag= c

FT /note= "wild type TCG is replaced by GCG"

XX WO9829537-A2.

XX 09-JUL-1998.

XX 23-DEC-1997; 97WO-EP07253.

XX 10-JAN-1997; 97US-0035024.

XX 27-DEC-1996; 96US-0034378.

XX (NOVS) NOVARTIS AG.

XX Friedrich LB, Molina Fernandez A, Ryals JA, Uknes SJ;

XX WPT; 1998-388119/33.

XX P-PSDB; AAW64436.

XX Protection of immunomodulated plants against pathogens - comprises

XX applying microbicide to provide increase in resistance

XX Claim 11; Page 116-120; 164pp; English.

XX This sequence encodes a variant NIM-1 protein from Arabidopsis

XX thaliana. This protein is used in a method resulting in the protection of

XX an immunomodulated plant having a first level of resistance and involves

XX treatment with at least 1 microbicide that confers a second level of

XX resistance, such that the plants have a third level of resistance greater

XX than the sum of the first two levels. The method can be applied to a wide

XX variety of plants (cereals, fruits, oilseeds, vegetables etc.) to protect

XX against viruses, fungi, bacteria, insects and nematodes. The method

XX provides a high level of resistance and allows a reduction in the amount

XX of microbicide used. Since the process involves two different methods of

XX protection, it is unlikely that the pathogen will develop resistance to

XX the treatment.

XX SQ Sequence 2011 BP; 563 A; 417 C; 474 G; 557 T; 0 other;

Query Match 95.4%; Score 2006.2; DB 19; Length 2011;
Best Local Similarity 99.9%; Pred. No. 0;

| Matches 2008; Conservative 0; Mismatches 3; Indels 0; Gaps 0; | | | |
|---|------|--|------|
| QY | 51 | GATCTCTTTAAATTTGTAATTTCAATTCATCGGAACCTGTTGATGGACACACCATTTGAT | 110 |
| Db | 1 | GATCTCTTTAAATTTGTAATTTCAATTCATCGGAACCTGTTGATGGACACACCATTTGAT | 60 |
| QY | 111 | GGATTCGCCGATCTTATGAATCATCAGCACACTAGTTTCGTCGCTACCGATTAACACCCGAC | 170 |
| Db | 61 | GGATTCGCCGATCTTATGAATCATCAGCACACTAGTTTCGTCGCTACCGATTAACACCCGAC | 120 |
| QY | 171 | TCCTCTATTTGTTATCTGGCGCGCGAACAAGTACTCACGGGACCTGATGATCTGCTCTG | 230 |
| Db | 121 | TCCTCTATTTGTTATCTGGCGCGCGAACAAGTACTCACGGGACCTGATGATCTGCTCTG | 180 |
| QY | 231 | CAATTTGCTCTCCAAACAGCTTCGAATCCGTTTGACTCGCGGGATGATTTCTACAGCGAC | 290 |
| Db | 181 | CAATTTGCTCTCCAAACAGCTTCGAAGCCGCTTTGACGCGCGGATGATTTCTACAGCGAC | 240 |
| QY | 291 | GCTAAGCTTTGTTCTCTCCGACGCGCGGAAGTTCTTTCCACCGGTGGCTTTTGTTCAGCG | 350 |
| Db | 241 | GCTAAGCTTTGTTCTCTCCGACGCGCGGAAGTTCTTTCCACCGGTGGCTTTTGTTCAGCG | 300 |
| QY | 351 | AGAAGCTCTTTCTCAAGAGCGCTTAGCGCGCGCTAAGAAGGAGAAAGACTCCAAACAAC | 410 |
| Db | 301 | AGAAGCTCTTTCTCAAGAGCGCTTAGCGCGCGCTAAGAAGGAGAAAGACTCCAAACAAC | 360 |
| QY | 411 | ACCGCGCGCGTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACCAAGTCGGTTTCGAT | 470 |
| Db | 361 | ACCGCGCGCGTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACCAAGTCGGTTTCGAT | 420 |
| QY | 471 | TCGGTTGTGACTGTTTTGGCTTATGTTTTACAGCAGCAGAGTGAGACCGCGCTAAAGGA | 530 |
| Db | 421 | TCGGTTGTGACTGTTTTGGCTTATGTTTTACAGCAGCAGAGTGAGACCGCGCTAAAGGA | 480 |
| QY | 531 | GTTTCTGAAATGCGCAGACGAGAAATTGCTGCCACGTGGCTTCGCCGCGCGGTGGATTTC | 590 |
| Db | 481 | GTTTCTGAAATGCGCAGACGAGAAATTGCTGCCACGTGGCTTCGCCGCGCGGTGGATTTC | 540 |
| QY | 591 | ATGTTGGAGGTTCTCTATTTGGCTTTTCATCTTCAAGATCCCTCAATTAATTACTCTCTAT | 650 |
| Db | 541 | ATGTTGGAGGTTCTCTATTTGGCTTTTCATCTTCAAGATCCCTCAATTAATTACTCTCTAT | 600 |
| QY | 651 | CAGAGGCACCTTATGGAGCTTGTAGACAAAGTTGTTATAGAGGACACATTTGGTTATCTC | 710 |
| Db | 601 | CAGAGGCACCTTATGGAGCTTGTAGACAAAGTTGTTATAGAGGACACATTTGGTTATCTC | 660 |
| QY | 711 | AAGCTTTGCTAATATATGTTGAAGCTTGTATGAAGCTATTGGATAGATGTAAGAAGATT | 770 |
| Db | 661 | AAGCTTTGCTAATATATGTTGAAGCTTGTATGAAGCTATTGGATAGATGTAAGAAGATT | 720 |
| QY | 771 | ATTGTCAAGTCTAATGTAGATATGGTTAGTCTTGAAGTCAATTCGCCGAAGAGCTTGT | 830 |
| Db | 721 | ATTGTCAAGTCTAATGTAGATATGGTTAGTCTTGAAGTCAATTCGCCGAAGAGCTTGT | 780 |
| QY | 831 | AAAGAGATAATTGATAGACGTAAGAGCTTGGTTGGAGGTACCTTAAAGTAAGAACAAT | 890 |
| Db | 781 | AAAGAGATAATTGATAGACGTAAGAGCTTGGTTGGAGGTACCTTAAAGTAAGAACAAT | 840 |
| QY | 891 | GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTG | 950 |
| Db | 841 | GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTG | 900 |
| QY | 951 | AAAGAGGATCACCAATCTAGATGATGCGTGTCTTTCATTTGCTGTTGCATATTGCG | 1010 |
| Db | 901 | AAAGAGGATCACCAATCTAGATGATGCGTGTCTTTCATTTGCTGTTGCATATTGCG | 960 |
| QY | 1011 | AATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTTCCGATGTCACACCATAGGAAT | 1070 |
| Db | 961 | AATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTTCCGATGTCACACCATAGGAAT | 1020 |
| QY | 1071 | CCGAGGGGATATACGGTGCCTTCATGTTGCTGCGATGCGGAAGGACGACAAATTTGATCTA | 1130 |
| Db | 1021 | CCGAGGGGATATACGGTGCCTTCATGTTGCTGCGATGCGGAAGGACGACAAATTTGATCTA | 1080 |

| | | | | |
|----|------|-----|---|------|
| QY | 1131 | TC | CTATTGGAAAAAGGTGCAAGTGCATCAGAAGCAACTTTTGAAGGTAGAACCGCACTC | 1190 |
| Db | 1081 | TC | CTATTGGAAAAAGGTGCAAGTGCATCAGAAGCAACTTTTGAAGGTAGAACCGCACTC | 1140 |
| QY | 1191 | AT | GATCGGCAAAACAAGCCACTATGGCGTTTGAATGTAAATATATCCCGGAGCAATGCAAG | 1250 |
| Db | 1141 | AT | GATCGGCAAAACAAGCCACTATGGCGTTTGAATGTAAATATATCCCGGAGCAATGCAAG | 1200 |
| QY | 1251 | CA | TTCTCTCAAAAGCGGCACTATGTGTAGAAATFACTAGAGCAAGAGACAAACGAGAAACA | 1310 |
| Db | 1201 | CA | TTCTCTCAAAAGCGGCACTATGTGTAGAAATFACTAGAGCAAGAGACAAACGAGAAACA | 1260 |
| QY | 1311 | ATT | CTCTAGAGATGTTCCCTCCCTCTTTTGCAGTGGCGCGGATGAATTAAGATGACCGCTG | 1370 |
| Db | 1261 | ATT | CTCTAGAGATGTTCCCTCCCTCTTTTGCAGTGGCGCGGATGAATTAAGATGACCGCTG | 1320 |
| QY | 1371 | CT | CGATCTTGAANAATAGAGTTGCACTTCTCAACGCTCTTTTCCAAAGCAAGACCAAGCT | 1430 |
| Db | 1321 | CT | CGATCTTGAANAATAGAGTTGCACTTCTCAACGCTCTTTTCCAAAGCAAGACCAAGCT | 1380 |
| QY | 1431 | GCA | ATGAGATCGCCGAAATGAAGGAAACATGTGAGTTTCATAGTACTAGCCTCGAGCCT | 1490 |
| Db | 1381 | GCA | ATGAGATCGCCGAAATGAAGGAAACATGTGAGTTTCATAGTACTAGCCTCGAGCCT | 1440 |
| QY | 1491 | GAC | CTCTCACTGGTACGAGAGACATCCCGGCTGTAAAGATAGCACCTTTCAGAAATC | 1550 |
| Db | 1441 | GAC | CTCTCACTGGTACGAGAGACATCCCGGCTGTAAAGATAGCACCTTTCAGAAATC | 1500 |
| QY | 1551 | CT | AGAAGACATCAAAAGTAGACTAAAAGCGCTTCTTAAACCGTGGAAACGCA | 1610 |
| Db | 1501 | CT | AGAAGACATCAAAAGTAGACTAAAAGCGCTTCTTAAACCGTGGAAACGCA | 1560 |
| QY | 1611 | TT | CTCCCGCGCTGTTCCGCACTGCTCGACAGATTATGAACCTGTGAGGACTTGACTCAA | 1670 |
| Db | 1561 | TT | CTCCCGCGCTGTTCCGCACTGCTCGACAGATTATGAACCTGTGAGGACTTGACTCAA | 1620 |
| QY | 1671 | CT | GGCTTGGGAGAGACGACACTGCTGAGAAACGACTACAAAAGCAAGGTACATG | 1730 |
| Db | 1621 | CT | GGCTTGGGAGAGACGACACTGCTGAGAAACGACTACAAAAGCAAGGTACATG | 1680 |
| QY | 1731 | GAA | ATACAGAGACACTAAAGAAAGCGCTTTAGTGAGGACAAATTTGGAATTAGGAATTCG | 1790 |
| Db | 1681 | GAA | ATACAGAGACACTAAAGAAAGCGCTTTAGTGAGGACAAATTTGGAATTAGGAATTCG | 1740 |
| QY | 1791 | TC | CTCAGAGATTCGACTTCTCCACATCGAAATCAACGGTGGAAAGAGCTCTAACCGT | 1850 |
| Db | 1741 | TC | CTCAGAGATTCGACTTCTCCACATCGAAATCAACGGTGGAAAGAGCTCTAACCGT | 1800 |
| QY | 1851 | AA | ACTCTCATCGTCGTCGGTGAGACTCTTCCCTCTTAGTGTAAATTTTCTGTGACCAT | 1910 |
| Db | 1801 | AA | ACTCTCATCGTCGTCGGTGAGACTCTTCCCTCTTAGTGTAAATTTTCTGTGACCAT | 1860 |
| QY | 1911 | ATA | TTCTGTTTCATGATGACTGTAACCTGTTATGCTATCGTTGGCGCTCATATAGTTT | 1970 |
| Db | 1861 | ATA | TTCTGTTTCATGATGACTGTAACCTGTTATGCTATCGTTGGCGCTCATATAGTTT | 1920 |
| QY | 1971 | CG | CTCTCTGTTTTCATCTCTGTATTTGCTGCAAGTGTGCTTCAACCAAAATGTTGTA | 2030 |
| Db | 1921 | CG | CTCTCTGTTTTCATCTCTGTATTTGCTGCAAGTGTGCTTCAACCAAAATGTTGTA | 1980 |
| QY | 2031 | ACA | TTTGAACCAATGGTATACAGATTTGTA 2061 | |
| Db | 1981 | ACA | TTTGAACCAATGGTATACAGATTTGTA 2011 | |

RESULT 4
AAV43661
ID AAV43661 standard; cDNA; 2011 BP.
XX
XX AAV43661;
DT 29-SEP-1998 (first entry)

XX DE Non-inducible immunity-1 (NIM1) protein variant 1 encoding cDNA.

XX KW Non-inducible immunity-1 gene; NIM1 gene; disease resistance; mutant;

XX KW transgenic plant; SAR; systemic acquired resistance; CIM; pathogen;

XX KW constitutive immunity; agriculture; variant; ss.

XX OS Arabidopsis thaliana.

XX OS Synthetic.

PH Key Location/Qualifiers

FT CDS 43..1824

FT /*tag= a "NIM1 protein variant 1"

FT /product= 205..207

FT mutation /*tag= b

FT /*note= "wild type TGC is replaced by GCC"

FT mutation /*tag= c

FT /*note= "wild type TCG is replaced by GCG"

XX W09826082-A1.

XX 18-JUN-1998.

XX PD 12-DEC-1997; 97WO-EP07012.

XX PR 20-JUN-1997; 97US-0880179.

XX PR 13-DEC-1996; 96US-0033117.

XX PR 27-DEC-1996; 96US-0034379.

XX PR 27-DEC-1996; 96US-0034382.

XX PR 10-JAN-1997; 97US-0034730.

XX PR 10-JAN-1997; 97US-0035021.

XX PR 10-JAN-1997; 97US-0035022.

XX (NOVS) NOVARTIS AG.

XX PA Friedrich LB, Hunt MD, Lawton KA, Ryals JA, Steiner HY;

XX PI Uknes SJ;

XX WPI: 1998-348536/30.

XX DR P-PSDB; AAW61983.

XX Use of non-inducible immunity-1 gene - for transforming plants to

XX produce transgenic plants having a broad spectrum disease resistance

XX Claim 5; Pages 140-144; 205pp; English.

XX This cDNA encodes an altered form of the Arabidopsis thaliana non-

XX inducible immunity-1 (NIM1) protein. Sequences shown in AAV43661 to

XX AAV43665 represent variants of the NIM1 cDNA. The invention provides a

XX chimeric gene comprising a promoter active in plants operatively linked

XX to a DNA molecule that encodes an altered form of the NIM1 protein. Plant

XX cells stably transformed with a recombinant vector comprising such a

XX chimeric gene have a broad spectrum of disease resistance. The altered

XX NIM1 proteins act as dominant-negative regulators of the systemic

XX acquired resistance (SAR) signal transduction pathway. The transgenic

XX plants transformed with an altered NIM1 gene exhibits constitutive SAR

XX expression which is higher in the transformed plants than in a wild-type

XX plant. The products can be used for producing plants with a broad

XX spectrum disease resistance. Overexpression of NIM1 mimics the effects

XX of inducer compounds that induce constitutive immunity (CIM) phenotype

XX in plants. The inventions can be used with plants such as rice, wheat,

XX barley, rye, corn, potato, carrot, sweet potato, sugar beet, bean, pea,

XX chichory, lettuce, cabbage, cauliflower, broccoli, turnip, radish,

XX spinach, asparagus, onion, garlic, eggplant, pepper, celery, carrot,

XX squash, pumpkin, zucchini, cucumber, apple, pear, quince, melon, plum,

XX cherry, peach, nectarine, apricot, strawberry, grape, raspberry,

XX blackberry, pineapple, avocado, papaya, mango, banana, soybean, tobacco,

XX tomato, sorghum and sugarcane. The plants produced are resistant to

XX plant pathogens such as viruses, viroids, fungi, bacteria, insects such

XX as aphids and lepidoptera and nematodes. The plants produced can be used

XX in agriculture.

XX Sequence 2011 BP; 563 A; 417 C; 474 G; 557 T; 0 other;

SQ Query Match 95.4%; Score 2006.2; DB 19; Length 2011;

Best Local Similarity 99.9%; Pred. No. 0;

Matches 2008; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 51 GATCTCTTTAAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCACTATTGAT 110

DB 1 GATCTCTTTAAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCACTATTGAT 60

QY 111 GGATTCGCCGATTCCTTATGAATTCAGCAGCACTAGTTTCGTCGCTACCGATTAACACCGAC 170

DB 61 GGATTCGCCGATTCCTTATGAATTCAGCAGCACTAGTTTCGTCGCTACCGATTAACACCGAC 120

QY 171 TCCTCTATTGTTTATCTGGCCGCGGAACGTAAGTACTCACCGGACCTGATGTATCTGCTCTG 230

DB 121 TCCTCTATTGTTTATCTGGCCGCGGAACGTAAGTACTCACCGGACCTGATGTATCTGCTCTG 180

QY 231 CAATTGCTCTCCCAACAGCTTCGAAATCCGCTTTGACTCCGCGGATGATTTCTACAGCGAC 290

DB 181 CAATTGCTCTCCCAACAGCTTCGAAATCCGCTTTGACTCCGCGGATGATTTCTACAGCGAC 240

QY 291 GCTAAGCTTCTCTCCGACGCGCGGAAGTTTCTTTCCACCGGTGCGTTTGTGTCAGCG 350

DB 241 GCTAAGCTTCTCTCCGACGCGCGGAAGTTTCTTTCCACCGGTGCGTTTGTGTCAGCG 300

QY 351 AGAAGCTCTTTCTTCAAGAGCGCTTTAGCCGCGCTTAAAGAGGAGAAAGACTCCAACAAC 410

DB 301 AGAAGCTCTTTCTTCAAGAGCGCTTTAGCCGCGCTTAAAGAGGAGAAAGACTCCAACAAC 360

QY 411 ACCGCCCGCTGAAAGCTCGAGCTTAAAGGAGATTGCCAAGGATTACGAAGTTCGGTTTCGAT 470

DB 361 ACCGCCCGCTGAAAGCTCGAGCTTAAAGGAGATTGCCAAGGATTACGAAGTTCGGTTTCGAT 420

QY 471 TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGGAGCGCGCCCTAAAGGA 530

DB 421 TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGGAGCGCGCCCTAAAGGA 480

QY 531 GTTTCTGAATGCGCAGACGAGAAATGCTGCGAGTGGCTTGC CGCGCGCGGGTTC 590

DB 481 GTTTCTGAATGCGCAGACGAGAAATGCTGCGAGTGGCTTGC CGCGCGCGGGTTC 540

QY 591 ATGTTGGAGGTTCCTATTGTTGGCTTCTCATCTTCAAGATCCCTGAATTAATTAATCTCTAT 650

DB 541 ATGTTGGAGGTTCCTATTGTTGGCTTCTCATCTTCAAGATCCCTGAATTAATTAATCTCTAT 600

QY 651 CAGAGGCACCTATTGGAGCTTTAGACAAAGTTGTTATAGAGACACATTTGGTTATACTC 710

DB 601 CAGAGGCACCTATTGGAGCTTTAGACAAAGTTGTTATAGAGACACATTTGGTTATACTC 660

QY 711 AAGCTTGTCTAATATATGTTGTTAAAGCTTGTATGAAGCTATTGGATAGATGTAAGAGATT 770

DB 661 AAGCTTGTCTAATATATGTTGTTAAAGCTTGTATGAAGCTATTGGATAGATGTAAGAGATT 720

QY 771 ATGTCGAAGTCTAATAGATATGTTGGCTTCTCAAGATCCCTGAATTAATTAATCTCTAT 830

DB 721 ATGTCGAAGTCTAATAGATATGTTGGCTTCTCAAGATCCCTGAATTAATTAATCTCTAT 780

QY 831 AAAGAGATAATTGATAGACGTTAAAGAGCTTGGTTGGAGGTACCTAAAGTAAAGAAACAT 890

DB 781 AAAGAGATAATTGATAGACGTTAAAGAGCTTGGTTGGAGGTACCTAAAGTAAAGAAACAT 840

QY 891 GTCTCGAATGTACATAAGGCACTTACTCGGATGATATTGAGTTAGTCAAGTTCGCTTTTTC 950

DB 841 GTCTCGAATGTACATAAGGCACTTACTCGGATGATATTGAGTTAGTCAAGTTCGCTTTTTC 900

QY 951 AAAGAGGATCACCAATCTAGATGATGCGTCTCTTCTTCAATTCGCTGTTGATATTGC 1010

DB 901 AAAGAGGATCACCAATCTAGATGATGCGTCTCTTCTTCAATTCGCTGTTGATATTGC 960

QY 1011 AATGTGAAGACCGCAACAGATCTTTTAAACCTTGTCTTCCGATGTCAACCATAGGAAT 1070

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| PR | 18-JUN-1999; | 99US-0139461. | PR | 23-AUG-1999; | 99US-0149930. |
| PR | 18-JUN-1999; | 99US-0139462. | PR | 26-AUG-1999; | 99US-0150566. |
| PR | 18-JUN-1999; | 99US-0139463. | PR | 26-AUG-1999; | 99US-0150884. |
| PR | 18-JUN-1999; | 99US-0139750. | PR | 27-AUG-1999; | 99US-0151065. |
| PR | 18-JUN-1999; | 99US-0139763. | PR | 27-AUG-1999; | 99US-0151066. |
| PR | 21-JUN-1999; | 99US-0139817. | PR | 27-AUG-1999; | 99US-0151080. |
| PR | 22-JUN-1999; | 99US-0139899. | PR | 30-AUG-1999; | 99US-0151303. |
| PR | 23-JUN-1999; | 99US-0140353. | PR | 31-AUG-1999; | 99US-0151438. |
| PR | 24-JUN-1999; | 99US-0140354. | PR | 01-SEP-1999; | 99US-0151930. |
| PR | 24-JUN-1999; | 99US-0140695. | PR | 07-SEP-1999; | 99US-0152363. |
| PR | 28-JUN-1999; | 99US-0140823. | PR | 10-SEP-1999; | 99US-0153070. |
| PR | 29-JUN-1999; | 99US-0140991. | PR | 13-SEP-1999; | 99US-0153758. |
| PR | 30-JUN-1999; | 99US-0141287. | PR | 15-SEP-1999; | 99US-0154018. |
| PR | 01-JUL-1999; | 99US-0141842. | PR | 16-SEP-1999; | 99US-0154039. |
| PR | 01-JUL-1999; | 99US-0142154. | PR | 20-SEP-1999; | 99US-0154779. |
| PR | 02-JUL-1999; | 99US-0142055. | PR | 22-SEP-1999; | 99US-0155139. |
| PR | 08-JUL-1999; | 99US-0142390. | PR | 23-SEP-1999; | 99US-0155486. |
| PR | 08-JUL-1999; | 99US-0142803. | PR | 24-SEP-1999; | 99US-0155659. |
| PR | 09-JUL-1999; | 99US-0142920. | PR | 28-SEP-1999; | 99US-0156458. |
| PR | 12-JUL-1999; | 99US-0142977. | PR | 29-SEP-1999; | 99US-0156596. |
| PR | 13-JUL-1999; | 99US-0143542. | PR | 04-OCT-1999; | 99US-0157117. |
| PR | 14-JUL-1999; | 99US-0143624. | PR | 05-OCT-1999; | 99US-0157753. |
| PR | 15-JUL-1999; | 99US-0144005. | PR | 06-OCT-1999; | 99US-0157865. |
| PR | 16-JUL-1999; | 99US-0144085. | PR | 07-OCT-1999; | 99US-0158029. |
| PR | 16-JUL-1999; | 99US-0144086. | PR | 08-OCT-1999; | 99US-0158232. |
| PR | 19-JUL-1999; | 99US-0144325. | PR | 12-OCT-1999; | 99US-0158369. |
| PR | 19-JUL-1999; | 99US-0144331. | PR | 13-OCT-1999; | 99US-0159293. |
| PR | 19-JUL-1999; | 99US-0144332. | PR | 13-OCT-1999; | 99US-0159294. |
| PR | 19-JUL-1999; | 99US-0144333. | PR | 13-OCT-1999; | 99US-0159295. |
| PR | 19-JUL-1999; | 99US-0144334. | PR | 14-OCT-1999; | 99US-0159329. |
| PR | 19-JUL-1999; | 99US-0144335. | PR | 14-OCT-1999; | 99US-0159330. |
| PR | 20-JUL-1999; | 99US-0144352. | PR | 14-OCT-1999; | 99US-0159331. |
| PR | 20-JUL-1999; | 99US-0144632. | PR | 14-OCT-1999; | 99US-0159637. |
| PR | 20-JUL-1999; | 99US-0144684. | PR | 14-OCT-1999; | 99US-0159638. |
| PR | 21-JUL-1999; | 99US-0144814. | PR | 18-OCT-1999; | 99US-0159584. |
| PR | 21-JUL-1999; | 99US-0145086. | PR | 21-OCT-1999; | 99US-0160741. |
| PR | 21-JUL-1999; | 99US-0145088. | PR | 21-OCT-1999; | 99US-0160767. |
| PR | 22-JUL-1999; | 99US-0145087. | PR | 21-OCT-1999; | 99US-0160770. |
| PR | 22-JUL-1999; | 99US-0145089. | PR | 21-OCT-1999; | 99US-0160814. |
| PR | 22-JUL-1999; | 99US-0145192. | PR | 21-OCT-1999; | 99US-0160815. |
| PR | 23-JUL-1999; | 99US-0145145. | PR | 22-OCT-1999; | 99US-0160980. |
| PR | 23-JUL-1999; | 99US-0145218. | PR | 22-OCT-1999; | 99US-0160981. |
| PR | 23-JUL-1999; | 99US-0145224. | PR | 22-OCT-1999; | 99US-0160989. |
| PR | 26-JUL-1999; | 99US-0145276. | PR | 25-OCT-1999; | 99US-0161404. |
| PR | 27-JUL-1999; | 99US-0145913. | PR | 25-OCT-1999; | 99US-0161405. |
| PR | 27-JUL-1999; | 99US-0145918. | PR | 25-OCT-1999; | 99US-0161406. |
| PR | 27-JUL-1999; | 99US-0145919. | PR | 26-OCT-1999; | 99US-0161359. |
| PR | 28-JUL-1999; | 99US-0145951. | PR | 26-OCT-1999; | 99US-0161360. |
| PR | 02-AUG-1999; | 99US-0146386. | PR | 26-OCT-1999; | 99US-0161361. |
| PR | 02-AUG-1999; | 99US-0146388. | PR | 28-OCT-1999; | 99US-0161920. |
| PR | 02-AUG-1999; | 99US-0146389. | PR | 28-OCT-1999; | 99US-0161992. |
| PR | 03-AUG-1999; | 99US-0147038. | PR | 28-OCT-1999; | 99US-0161993. |
| PR | 04-AUG-1999; | 99US-0147204. | PR | 29-OCT-1999; | 99US-0162142. |
| PR | 04-AUG-1999; | 99US-0147302. | Query Match 94.8%; Score 1993.6; DB 21; Length 2024; | | |
| PR | 05-AUG-1999; | 99US-0147192. | Best Local Similarity 99.1%; Pred. No. 0; | | |
| PR | 05-AUG-1999; | 99US-0147260. | Matches 2005; Conservative 0; Mismatches 19; Indels 0; Gaps 0; | | |
| PR | 06-AUG-1999; | 99US-0147303. | QY | 60 | AATTTGTAATTCATTCGGAACCTGTTGATGGACACACCATTTGATGGATCGCC 119 |
| PR | 06-AUG-1999; | 99US-0147303. | Db | 1 | AATTTGTAATTCATTCGGAACCTGTTGATGGACACACCATTTGATGGATCGCC 60 |
| PR | 09-AUG-1999; | 99US-0147493. | QY | 120 | GATTCTTATGAATCAGCAGCACTAGTTTCGTGCTACCGATAACACCGACTCCTCTATT 179 |
| PR | 10-AUG-1999; | 99US-0148171. | Db | 61 | GATTCTTATGAATCAGCAGCACTAGTTTCGTGCTACCGATAACACCGACTCCTCTATT 120 |
| PR | 11-AUG-1999; | 99US-0148319. | QY | 180 | GTTTATCTGGCCGCGAACAAGTACTACCGACCTGATGATATCTGCTCTCAATTGCTC 239 |
| PR | 12-AUG-1999; | 99US-0148341. | Db | 121 | GTTTATCTGGCCGCGAACAAGTACTACCGACCTGATGATATCTGCTCTCAATTGCTC 180 |
| PR | 13-AUG-1999; | 99US-0148565. | QY | 240 | TCCAACAGTTCGAATCGTCTTTTGACTCGCGGATGATTCTTACAGCGAGCTAAGCTT 299 |
| PR | 16-AUG-1999; | 99US-0148684. | | | |
| PR | 17-AUG-1999; | 99US-0149175. | | | |
| PR | 18-AUG-1999; | 99US-0149426. | | | |
| PR | 20-AUG-1999; | 99US-0149722. | | | |
| PR | 20-AUG-1999; | 99US-0149723. | | | |
| PR | 23-AUG-1999; | 99US-0149929. | | | |
| PR | 23-AUG-1999; | 99US-0149902. | | | |

Db 181 TCCAAAGCTTCGAATCGCTCTTTGACTCGCGGATGATTTCTACAGGACGCTAAGCTT 240
QY 300 GTTCTCTCGAGCGCGGAGTTTCTTTCCACCGTGCCTTTTGTCTAGCGAGAGCTCT 359
Db 241 GTTCTCTCGAGCGCGGAGTTTCTTTCCACCGTGCCTTTTGTCTAGCGAGAGCTCT 300
QY 360 TTCTTTCAAGAGCGCTTTAGCGCGCGCTTAAGAAGGAGAAAGACTCCAACAACACCGCGGCC 419
Db 301 TTCTTCAAGAGCGCTTTAGCGCGCGCTTAAGAAGGAGAAAGACTCCAACAACACCGCGGCC 360
QY 420 GTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGATTCGGTTGTG 479
Db 361 GTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGATTCGGTTGTG 420
QY 480 ACTGTTTTGGCTTATGTTTTACAGCAGCAGAGTGAGACCGCGCCCTAAAGGATTTCTGAA 539
Db 421 ACTGTTTTGGCTTATGTTTTACAGCAGCAGAGTGAGCGCGCCCTAAAGGATTTCTGAA 480
QY 540 TCGCAGACGAGAAATGCTGCCAGTGGCTTTCGCCGGCGCGGTGGATTTTCATGTTGGAG 599
Db 481 TCGCGTGCAGAGAAATGCTGCCAGTGGCTTTCGCCGGCGCGGTGGATTTTCATGTTGGAG 540
QY 600 GTTCTCTATTTGGCTTTCATCTTCAAGATCCCTGAATTAATTACTCTCTATFCAGAGGCAC 659
Db 541 GTTCTCTATTTGGCTTTCATCTTCCAGATCCCTGAATTAATTACTCTCTATFCAGAGGCAC 600
QY 660 TTATTGGACGTTGTAGACAAAGTTGTTATAGAGCACACATTTGGTTATCTCAAGCTTGCT 719
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QY 720 AATATATGCTAAAGCTTGTATGAAGCTATTGGATAGATGTAAGAGATTAATTGTCAAG 779
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QY 780 TCTAATGTAGATATGGTTAGTCTTGAAGAAGTCATTTGCCGGAAGAGCTTGTAAAGAGATA 839
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QY 1320 GATGTTCTCCCTCTTTTGGAGTGGCGCGCGATGAAATGAGATGACGCTGCTCGATCTT 1379
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QY 1440 ATCCGCGAAATGAAGGAACATGTGAGTTTCATAGTGAAGTTCGAGCTCGAGCTGACCGCTC 1499
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QY 1500 ACTGGTACGAAGAGAACATCACCAGGTGTAAGATAGCACCCTTTCAGAAATTCCTAGAAGAG 1559
Db 1441 ACTGGTACGAAGAGAACATCACCAGGTGTAAGATAGCACCCTTTCAGAAATTCCTAGAAGAG 1500
QY 1560 CATCAAAGTAGACTAAAGCGCTTTCTAAACCGTGGAACTCGGGAAGAGTTCCTCCCG 1619
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QY 1620 CGCTGTTCCGSCAGTGTCTGACCAGATTAATCACTGTGAGGACTTTGACTCAACTGGCTTGC 1679
Db 1561 CGCTGTTCCGSCAGTGTCTGACCAGATTAATCACTGTGAGGACTTTGACTCAACTGGCTTGC 1620
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Db 1621 GGAGAAGACACACTGCTGAGAAACGACTACAAAAGAACAAAGGTACATGGAAATACAA 1680
QY 1740 GAGACACTAAAGAAGCGCTTTAGTGAGGACAAATTTGGAATTAGGAAATTCGCTCCGTGACA 1799
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QY 1860 CATCGTCTCGGTGAGACTTCTGCGCTCTTAGTGTAATTTTTCGTGTACCATTAATTCG 1919
Db 1801 CATCGTCTCGGTGAGACTTCTGCGCTCTTAGTGTAATTTTTCGTGTACCATTAATTCG 1860
QY 1920 TTTTTCATGATGACTGTAACCTGTTTATGCTATCTGTTGGCGTCATATAGTTTCGCTCTCG 1979
Db 1861 TTTTTCATGATGACTGTAACCTGTTTATGCTATCTGTTGGCGTCATATAGTTTCGCTCTCG 1920
QY 1980 TTTTTCATCCTGTGATTAATGCTGCAAGTGTCTTCAACAAATTTGTAACAAATTTGA 2039
Db 1921 TTTTTCATCCTGTGATTAATGCTGCAAGTGTCTTCAACAAATTTGTAACAAATTTGA 1980
QY 2040 ACCAATGGTATACAGATTTGTAATATATATATATATATATATATATATATATATATAT 2083
Db 1981 ACCAATGGTATACAGATTTGTAATATATATATATATATATATATATATATATATATATAT 2040

RESULT 6
AAV46273
ID AAV46273 standard; DNA; 5655 BP.
XX
AC AAV46273;
XX
DT 16-Oct-1998 (first entry)
XX
DE A. thaliana NIM-1 genomic DNA.
XX
KW NIM-1; noninducible immunity; systemic acquired resistance; SAR;
KW pathogen; disease; protection; immunomodulated; plant; cereal; fruit;
KW vegetable; virus; fungi; bacteria; insect; nematode; microbicide; ss.
OS Arabidopsis thaliana.
XX
Key Location/Qualifiers
FH 2787..4866
CDS /tag= a
FT /product= NIM-1
FT 2787..3347
FT /tag= b
FT /number= 1

FT intron 3348..3426
FT /*tag= c
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FT /number= 4

PN W09829537-A2.

XX 09-JUL-1998.

XX 23-DEC-1997; 97WO-EP07253..

PR 10-JAN-1997; 97US-0035024.

PR 27-DEC-1996; 96US-0034378.

XX (NOVS) NOVARTIS AG.

PA Friedrich LB, Molina Fernandez A, Ryals JA, Uknes SJ;

PI WPI: 1998-388119/33.

XX P-PSDB; AAN64435.

DR Protection of immunomodulated plants against pathogens - comprises
DR applying microbicide to provide increase in resistance

XX Claim 7; Page 96-103; 164pp; English.

XX This genomic DNA sequence encodes the NIM-1 protein from Arabidopsis
CC thaliana. This protein is used in a method resulting in the protection of
CC an immunomodulated plant having a first level of resistance and involves
CC treatment with at least 1 microbicide that confers a second level of
CC resistance, such that the plants have a third level of resistance greater
CC than the sum of the first two levels. The method can be applied to a wide
CC variety of plants (cereals, fruits, oilseeds, vegetables etc.) to protect
CC against viruses, fungi, bacteria, insects and nematodes. The method
CC provides a high level of resistance and allows a reduction in the amount
CC of microbicide used. Since the process involves two different methods of
CC protection, it is unlikely that the pathogen will develop resistance to
CC the treatment.

XX Sequence 5655 BP; 1758 A; 1014 C; 1069 G; 1814 T; 0 other;

SQ Query Match 83.7%; Score 1760; DB 19; Length 5655;
Best Local Similarity 87.5%; Pred. No. 0;
Matches 2088; Conservative 0; Mismatches 0; Indels 298; Gaps 3;

QY 1 TCAGATCTTTAACCAATCCAGTTGATAAGGTCCTCTTCGTTGATTAGCAGAGATCTCTTTA 60

Db 2695 TCAGATCTTTAACCAATCCAGTTGATAAGGTCCTCTTCGTTGATTAGCAGAGATCTCTTTA 2754

QY 61 ATTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCACCATTTGATGGATTCGCCG 120

Db 2755 ATTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCACCATTTGATGGATTCGCCG 2814

QY 121 ATTCTTATGAATACAGACACCTAGTTTCGTCGCTACCGGATAACACCGACTCTCTATTG 180

Db 2815 ATTCTTATGAATACAGACACCTAGTTTCGTCGCTACCGGATAACACCGACTCTCTATTG 2874

QY 181 TTTATCTGGCCGCGGRACAGTACTACCGGACCTGATGTCGCTGCAATTCCTCT 240

Db 2875 TTTATCTGGCCGCGGRACAAAGTACTACCGGACCTGATGATGATCTGCTCTGCAATTGCTCT 2934

QY 241 CCAACAGCTTTGAAATCCGTCCTTTGACTCGCCGGATGATTTCTACAGGACGCTAAAGCTTG 300

Db 2935 CCAACAGCTTTGAAATCCGTCCTTTGACTCGCCGGATGATTTCTACAGGACGCTAAAGCTTG 2994

QY 301 TTCTCTCCGAGCGCGGGAAGTTTCTTTCCACCGGTGCGTTTGTGTCAGGAGAGCTCTT 360

Db 2995 TTCTCTCCGAGCGCGGGAAGTTTCTTTCCACCGGTGCGTTTGTGTCAGGAGAGCTCTT 3054

QY 361 TCTTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAAGACTCCAACACACCGCCGCCG 420

Db 3055 TCTTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAAGACTCCAACACACCGCCGCCG 3114

QY 421 TGAAGCTCGAGCTTTAAGGAGATTGCCAAGATTACGAAGTCGGTTTCGATTCGGTTGTGA 480

Db 3115 TGAAGCTCGAGCTTTAAGGAGATTGCCAAGATTACGAAGTCGGTTTCGATTCGGTTGTGA 3174

QY 481 CTGTTTGGCTTTATGTTTACAGCAGAGAGTGAGACCGCCGCCCTAAAGGAGTTTCTGAAT 540

Db 3175 CTGTTTGGCTTTATGTTTACAGCAGAGAGTGAGACCGCCGCCCTAAAGGAGTTTCTGAAT 3234

QY 541 GCGCAGAGAGAAATGCTGCCACGTGCTTCCGCGCGCGGTGGATTTCATGTTGGAGG 600

Db 3235 GCGCAGAGAGAAATGCTGCCACGTGCTTCCGCGCGCGGTGGATTTCATGTTGGAGG 3294

QY 601 TTTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTAATTAATTAATTAATTAAT 649

Db 3295 TTTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTAATTAATTAATTAATTAAT 3354

QY 650 ----- 649

Db 3355 ACCATCTGCATTAAGCTATGTTTACACATTCAATGAATATGTTCTTACTGAGTACTTGTA 3414

QY 650 -----TCAGAGGCACCTTATTTGGACGTTGTAGACAAAGTTGTTATAGAGGACACATTG 701

Db 3415 TTTGATTTTCAGAGCAGCATTATTCGACGTTGTAGACAAAGTTGTTATAGAGGACACATTG 3474

QY 702 GTTATACTCAAGCTTGCTTAATATATGTTGTAAGCTTGTATGAAGCTATTGGATAGATGT 761

Db 3475 GTTATACTCAAGCTTGCTTAATATATGTTGTAAGCTTGTATGAAGCTATTGGATAGATGT 3534

QY 762 AAAGAGATTATGCTCAAGCTCAATGTAGATAGTGTAGTCTTGAAGAGTCAATTCGCCGAA 821

Db 3535 AAAGAGATTATGCTCAAGCTCAATGTAGATAGTGTAGTCTTGAAGAGTCAATTCGCCGAA 3594

QY 822 GAGCTTTGTTAAAGAGATAATTTGATAGACGTAAGAGCTTGGTTTGGAGGTACCTTAAAGTA 881

Db 3595 GAGCTTTGTTAAAGAGATAATTTGATAGACGTAAGAGCTTGGTTTGGAGGTACCTTAAAGTA 3654

QY 882 AAGAAACATGCTCGAATGTACATAAGGCACCTTGACTCGGATGATATGAGTTAGTCAAG 941

Db 3655 AAGAAACATGCTCGAATGTACATAAGGCACCTTGACTCGGATGATATGAGTTAGTCAAG 3714

QY 942 TTGCTTTTGAAGAGGATCACACCAATCTAGATGATCGGTGCTCTTCATTTCCGCTGTT 1001

Db 3715 TTGCTTTTGAAGAGGATCACACCAATCTAGATGATCGGTGCTCTTCATTTCCGCTGTT 3774

QY 1002 GCATATTGCAATGTGAAGACCGCAACAGATCTTTTAAACCTTGATTCGCCGATGTCAAC 1061

Db 3775 GCATATTGCAATGTGAAGACCGCAACAGATCTTTTAAACCTTGATTCGCCGATGTCAAC 3834

QY 1062 CATAGGAATCCGAGGGATATACGGTGTCTTCATGTTGCTGCGATGCGGAGAGCCACAA 1121

Db 3835 CATAGGAATCCGAGGGATATACGGTGTCTTCATGTTGCTGCGATGCGGAGAGCCACAA 3894

QY 1122 TTGATACTATCTTATTCGAAAAAGGTGCAAGTGTCATCAGAAAGCAACTTTTGAAGGTAGA 1181

Db 3895 TTGATACTATCTTATTCGAAAAAGGTGCAAGTGTCATCAGAAAGCAACTTTTGAAGGTAGA 3954

QY 1182 ACCGCACCTCATGATCGCAAAAAACAGCCACTATGGCGGTTGAATGTAATAATATATCCGGAG 1241

Db 3955 ACCGCACCTCATGATCGCAAAAAACAGCCACTATGGCGGTTGAATGTAATAATATATCCGGAG 4014

| | | | |
|----|------|---|------|
| QY | 1242 | CAATGCAAGCAATCTCTCAAGGCCGCACTATGTGTAGAATACTAGACGAAGACAAA | 1301 |
| DB | 4015 | CAATGCAAGCAATCTCTCAAGGCCGCACTATGTGTAGAATACTAGACGAAGACAAA | 4074 |
| QY | 1302 | CGAAGACAAATTCCTCAGAGATGTTCTCCCTCTTTTGGAGTCGGCCGATGAATTGAAG | 1361 |
| DB | 4075 | CGAAGACAAATTCCTCAGAGATGTTCTCCCTCTTTTGGAGTCGGCCGATGAATTGAAG | 4134 |
| QY | 1362 | ATGAGCGTGCATCGATCTTGAAATAG- | 1387 |
| DB | 4135 | ATGAGCGTGCATCTTGAAATAGAGGTATCTATCAAGTCTTATTCTTATATGTTTG | 4194 |
| QY | 1388 | ----- | 1387 |
| DB | 4195 | AATTAAATTTATGTCTCTCTATTAGAACTGAGTGAACATAATGATAACTATTTCTTGT | 4254 |
| QY | 1388 | -----AGTGCACCTGCTCAACGCTCTTTTCCAACGGAAGCAAGCAAGCTGCA | 1433 |
| DB | 4255 | GTCGTCCACTGTTTATGTTAGTCATCTCAACGCTCTTTTCCAACGGAAGCAAGCTGCA | 4314 |
| QY | 1434 | ATGAGAGTCGCGAAATGAAGGAAACATCTGAGTTTCATAGTACTAGCCTCGAGCCTGAC | 1493 |
| DB | 4315 | ATGAGAGTCGCGAAATGAAGGAAACATCTGAGTTTCATAGTACTAGCCTCGAGCCTGAC | 4374 |
| QY | 1494 | CGTCTCACTGGTACGAAGGAACATCACCGGCTGTAAAGATAGCACTTTCAGAAATCCTA | 1553 |
| DB | 4375 | CGTCTCACTGGTACGAAGGAACATCACCGGCTGTAAAGATAGCACTTTCAGAAATCCTA | 4434 |
| QY | 1554 | GAGAGCATCAAGTAGACTAAAGCGCTTCTAAACG- | 1592 |
| DB | 4435 | GAGAGCATCAAGTAGACTAAAGCGCTTCTAAACGCGTATGGAATCTTCACCCACTT | 4494 |
| QY | 1593 | ----- | 1592 |
| DB | 4495 | CATCGGACTCCTTATCACAAAABACAAAACATAAATGATCTTTAAACATGGTTTGTGTACT | 4554 |
| QY | 1593 | -----GTGGAACTCGGGAACCATCTTTCCCGCGC | 1622 |
| DB | 4555 | TGCTGTCTGACCTTGTTTTTTTATCATCAGTGGAACTCGGGAAACGATCTTCCCGCGC | 4614 |
| QY | 1623 | TGTTTCGCGAGTCTCGACCAAGATTTGAACCTGTGAGGACTTGACTCAACTGGCTTCGGGA | 1682 |
| DB | 4615 | TGTTTCGCGAGTCTCGACCAAGATTTGAACCTGTGAGGACTTGACTCAACTGGCTTCGGGA | 4674 |
| QY | 1683 | GAGACGACACTCTCTGAGAAACGACTACAAAAGAAGCAAAAGGTACATGGAATACAAAG | 1742 |
| DB | 4675 | GAGACGACACTCTCTGAGAAACGACTACAAAAGAAGCAAAAGGTACATGGAATACAAAG | 4734 |
| QY | 1743 | ACACTAAAGAAGCCCTTACTCAGGACAATTTGGAAATTTAGAAATTCGTCCCTGCACAGAT | 1802 |
| DB | 4735 | ACACTAAAGAAGCCCTTACTCAGGACAATTTGGAAATTTAGAAATTCGTCCCTGCACAGAT | 4794 |
| QY | 1803 | TCGACTTCTTCCACATCGAAATCAACCGGTGGAAGAGGTCTAACCGTAACCTCTCTCAT | 1862 |
| DB | 4795 | TCGACTTCTTCCACATCGAAATCAACCGGTGGAAGAGGTCTAACCGTAACCTCTCTCAT | 4854 |
| QY | 1863 | CGTCGTGCGTGAGACTCTTGCCCTCTTACTGTAATTTTTCGTGTACCATATAATCTCTTTT | 1922 |
| DB | 4855 | CGTCGTGCGTGAGACTCTTGCCCTCTTACTGTAATTTTTCGTGTACCATATAATCTCTTTT | 4914 |
| QY | 1923 | TCATGATGACTGTAACTGTTTATGTCTATCGTCGGCTCATATAGTTTCGCTCTCTCGTTT | 1982 |
| DB | 4915 | TCATGATGACTGTAACTGTTTATGTCTATCGTCGGCTCATATAGTTTCGCTCTCTCGTTT | 4974 |
| QY | 1983 | TGCATCCTGTGTATTATGCTGCAGGTGTGCTTCAAAACAAATGTTGTAAACAATTTGAACC | 2042 |
| DB | 4975 | TGCATCCTGTGTATTATGCTGCAGGTGTGCTTCAAAACAAATGTTGTAAACAATTTGAACC | 5034 |
| QY | 2043 | AATGGTATACAGATTGTAATATATATTTATGTACATCAACATAA | 2088 |
| DB | 5035 | AATGGTATACAGATTGTAATATATATTTATGTACATCAACATAA | 5080 |

| Accession | Gene | Protein | Protein description |
|---|--|---------|---------------------|
| AAV43659 | AAV43659 standard; DNA; 5655 BP. | | |
| AAV43659 | AAV43659 | | |
| 29-SEP-1998 | (first entry) | | |
| A. thaliana | non-inducible immunity-1 (NIM1) protein encoding DNA. | | |
| Non-inducible immunity-1 gene; NIM1 gene; disease resistance; mutant; transgenic plant; SAR; systemic acquired resistance; CIM; pathogen; constitutive immunity; agriculture; ss. | | | |
| Arabidopsis thaliana. | | | |
| Key | Location/Qualifiers | | |
| CDS | 2787..4866 | | |
| FT | /*tag= a | | |
| FT | /product= "wild-type NIM1 protein" | | |
| FT | /note= "contains introns" | | |
| FT | 2787..3347 | | |
| FT | /*tag= b | | |
| FT | /number= 1 | | |
| FT | 3348..3426 | | |
| FT | /*tag= c | | |
| FT | /number= 1 | | |
| FT | 3427..4162 | | |
| FT | /*tag= d | | |
| FT | /number= 2 | | |
| FT | 4163..4270 | | |
| FT | /*tag= e | | |
| FT | /number= 2 | | |
| FT | 4271..4474 | | |
| FT | /*tag= f | | |
| FT | /number= 3 | | |
| FT | 4475..4585 | | |
| FT | /*tag= g | | |
| FT | /number= 3 | | |
| FT | 4586..4866 | | |
| FT | /*tag= h | | |
| FT | /number= 4 | | |
| FT | 4780..4782 | | |
| FT | /note= "this is indicated as TGG in a different part of the specification" | | |

| | | |
|----|--|---------------|
| PN | W09826082-AL. | |
| XX | | |
| XX | 18-JUN-1998. | |
| XX | | |
| XX | 12-DEC-1997; | 97WO-EP07012. |
| XX | | |
| XX | 20-JUN-1997; | 97US-0880179. |
| PR | 13-DEC-1996; | 96US-0033177. |
| PR | 27-DEC-1996; | 96US-0034379. |
| PR | 27-DEC-1996; | 96US-0034382. |
| PR | 10-JAN-1997; | 97US-0034730. |
| PR | 10-JAN-1997; | 97US-0035021. |
| PR | 10-JAN-1997; | 97US-0035022. |
| XX | | |
| PA | (NOVS) NOVARTIS AG. | |
| XX | | |
| PI | Friedrich LB, Hunt MD, Lawton KA, Ryals JA, Steiner HY; | |
| PI | UKnes SJ; | |
| XX | | |
| DR | WPI; 1998-348536/30. | |
| DR | P-PSDB; AAW61982. | |
| XX | | |
| XX | | |
| PT | Use of non-inducible immunity-1 gene - for transforming plants to | |
| PT | produce transgenic plants having a broad spectrum disease resistance | |
| XX | | |
| PS | Example 15; Pages 108-116; 205pp; English. | |


```
Db 4375 CGTCTACTGTAGAGAGAACATCACCGGTCTAAAGATAGCACCTTTTCAGAACTCTA 4434
Qy 1554 GAAGAGCATCAAGTAGACTAAAGCGCTTTCTAAACC----- 1592
Db 4435 GAAGAGCATCAAGTAGACTAAAGCGCTTTCTAAACC----- 4494
Qy 1593 ----- 1592
Db 4495 CATCGGACTCCTTATCACAAAAACAACTAAATGATCTTTAAACATGGTTTGTACT 4554
Qy 1593 -----GTGGAATCGGGAAACGATTTCTCCCGCGC 1622
Db 4555 TGCTGTCTGACTCTGTTTTTTTATCATCAGTGAACTCGGAAACGATTTCTCCCGCGC 4614
Qy 1623 TGTTCGGCAGTGCCTGACACGATTTATCAACTGTGAGGACTTGACTCAACTGGCTTGGCGGA 1682
Db 4615 TGTTCGGCAGTGCCTGACACGATTTATGAAGTGTGAGGACTTGACTCAACTGGCTTGGCGGA 4674
Qy 1683 GAAGACGACACTGCTGAGAACGACTACAAAAGCAAGAGGTACATGGAAATACAAGAG 1742
Db 4675 GAAGACGACACTGCTGAGAAACGACTACAAAAGCAAGAGGTACATGGAAATACAAGAG 4734
Qy 1743 ACACCTAAGAGGCTTTAGTGAGGACAATTTGGAATTTAGGAATTCGTCCTCGACAGAT 1802
Db 4735 ACACCTAAGAGGCTTTAGTGAGGACAATTTGGAATTTAGGAATTCGTCCTCGACAGAT 4794
Qy 1803 TCGACTTTCTCCACATCGAAATCAACCGGTGGAAGAGGTCTAACCGTAACCTCTCTCAT 1862
Db 4795 TCGACTTTCTCCACATCGAAATCAACCGGTGGAAGAGGTCTAACCGTAACCTCTCTCAT 4854
Qy 1863 CGTCTCGGTGAGACTCTTCCCTCTTAGTGTAAATTTTGTCTGTACCATATAATTCGTGTT 1922
Db 4855 CGTCTCGGTGAGACTCTTCCCTCTTAGTGTAAATTTTGTCTGTACCATATAATTCGTGTT 4914
Qy 1923 TCATGATGACTGTAACTGTTTATGTCTATCGTTGGCGGTCAATATAGTTTCGCTTTCGTTT 1982
Db 4915 TCATGATGACTGTAACTGTTTATGTCTATCGTTGGCGGTCAATATAGTTTCGCTTTCGTTT 4974
Qy 1983 TGCATCTGTGTATTATTGCTGAGGTGTGCTTCAACAAATCTTCTAACAATTTGAACC 2042
Db 4975 TGCATCTGTGTATTATTGCTGAGGTGTGCTTCAACAAATCTTCTAACAATTTGAACC 5034
Qy 2043 AATGGTATACAGATTGTGTAATATATATTTATGTATCATCAACATAA 2088
Db 5035 AATGGTATACAGATTGTGTAATATATATTTATGTATCATCAACATAA 5080
```

RESULT 8
AAV04632

ID AAV04632 standard; DNA; 5655 BP.

XX AAV04632;

DT 17-JUN-1998 (first entry)

XX Arabidopsis thaliana NIM1 gene.

KW NIM1; noninducible immunity; disease resistance; plants;
KW SAR gene expression; ss.

XX Arabidopsis thaliana.

```
FH Key Location/Qualifiers
FT CDS 2787..4866)
FT FT /*tag= a
FT FT /product= "NIM1 protein"
FT FT 2787..3347
FT FT /*tag= b
FT FT /number= 1
FT FT 3427..4162
FT FT /*tag= c
FT FT /number= 2
FT FT 4271..4474
FT FT exon
```

```
FT FT /*tag= d
FT FT /number= 3
FT FT 4586..4863
FT FT /*tag= e
FT FT /number= 4
XX PN W09749822-A1.
XX PD 31-DEC-1997.
XX PF 10-MAR-1997; 97WO-EP01218.
XX PR 10-JAN-1997; 97US-0035022.
XX PR 21-JUN-1996; 96US-0020272.
XX PR 30-AUG-1996; 96US-0024883.
XX PR 13-DEC-1996; 96US-0033177.
XX PR 27-DEC-1996; 96US-0773559.
XX PA (NOVS ) NOVARTIS AG.
XX PI Delaney TP, Ellis DM, Friedrich LB, Johnson JE;
PI Lawton KA, Ryals JA, Weymann K;
XX WPI: 1998-077185/07.
XX P-PSDB; AAW23963.
XX NIM1 gene which allows activation in plant of systemic acquired
PT resistance - useful to confer broad spectrum disease resistance in
PT plants, specifically crop plants, e.g. rice, wheat, barley, rye and
PT corn
XX Claim 2; Fig 15; 153pp; English.
XX The sequence is that of the NIM1 (noninducible immunity) gene. It
CC may be used to confer a broad spectrum disease resistance in plants,
CC specifically crop plants, e.g. rice, wheat, barley, rye and corn.
CC The NIM1 gene can be used to confer universal disease susceptibility
CC to plant cells, and their progeny. It can also be used in a screening
CC method for identifying compounds capable of inducing broad spectrum
CC disease resistance in plants, while the plant cells, and their
CC progeny, can be used to isolate a gene fragment which allows
CC expression of broad spectrum disease resistance in plants, or to
CC incorporate the resistant trait into plant lines through breeding.
XX SQ Sequence 5655 BP; 1758 A; 1014 C; 1069 G; 1814 T; 0 other;
```

Query Match 83.7%; Score 1760; DB 19; Length 5655;
Best Local Similarity 87.5%; Pred. No. 0;
Matches 2088; Conservative 0; Mismatches 0; Indels 298; Gaps 3;

```
Qy 1 TCGATCTTTAACCAATCCAGTTGATAAGGTCTCTTCGTTGATTAGCAGAGATCTCTTTA 60
Db 2695 TCGATCTTTAACCAATCCAGTTGATAAGGTCTCTTCGTTGATTAGCAGAGATCTCTTTA 2754
Qy 61 ATTTGTGAATTTCAATTCATCGAACCTGTTGATGGACACCACCATTCATGGATTCGCCG 120
Db 2755 ATTTGTGAATTTCAATTCATCGAACCTGTTGATGGACACCACCATTCATGGATTCGCCG 2814
Qy 121 ATTCCTTATSAATCAGCAGCAGTCTAGTTTCGTCGTACCGATAACACCGACTCTCTATTG 180
Db 2815 ATTCCTTATSAATCAGCAGCAGTCTAGTTTCGTCGTACCGATAACACCGACTCTCTATTG 2874
Qy 181 TTTATCTGGCGCGGACAAAGTACTACCGGACCTGATGTATCTGCTCTCAATTCGCTCT 240
Db 2875 TTTATCTGGCGCGGACAAAGTACTACCGGACCTGATGTATCTGCTCTCAATTCGCTCT 2934
Qy 241 CCAACAGCTTCGAATTCGCTCTTTGACTCGCGGATGATTTCTACAGCAGCAGCTTAAGCTTG 300
Db 2935 CCAACAGCTTCGAATTCGCTCTTTGACTCGCGGATGATTTCTACAGCAGCAGCTTAAGCTTG 2994
Qy 301 TTCTCTCGAGCGCGGGAAGTTTCTTTCCACCGGTGCGTTTTCAGCGAGAAGCTCTT 360
Db 2995 TTCTCTCGAGCGCGGGAAGTTTCTTTCCACCGGTGCGTTTTCAGCGAGAAGCTCTT 3054
```

QY 361 TCCTCAAGACGCTTTAGCGCGCTAAGAGAGAGAAAGACTCCAAACAACACGCGCGC 420
Db 3055 TCTCAAGAGCGCTTTAGCGCGCGCTAAGAGAGAGAAAGACTCCAAACAACACGCGCGC 3114
QY 421 TGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGATTTCGGTTGTGA 480
Db 3115 TGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGATTTCGGTTGTGA 3174
QY 481 CTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCCTAAAGAGATTTCGTGAAT 540
Db 3175 CTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCCTAAAGAGATTTCGTGAAT 3234
QY 541 GCGCAGACGAGATTGCTGCCAGTGTCTTCCGCGCGCGGTGGGATTTCATGTTGGAGG 600
Db 3235 GCGCAGACGAGATTGCTGCCAGTGTCTTCCGCGCGCGGTGGGATTTCATGTTGGAGG 3294
QY 601 TTCTCTATTTGGCTTTCATCTTCAAGATCCCTGAATTAATTAATCTCTA----- 649
Db 3295 TTCTCTATTTGGCTTTCATCTTCAAGATCCCTGAATTAATTAATCTCTAATCAAGTAAAC 3354
QY 650 ----- 649
Db 3355 ACCATCTGCATTAAAGCTPATGGTTACACATTCATGAATATGTTCTTACTTGAGTACTGTA 3414
QY 650 -----TCAGAGGCACTTATTGGAGCTTGTAGACAAAGTTGTTATFAGAGGACACATTG 701
Db 3415 TTTGCTATTTCAGAGGCACTTATTGGAGCTTGTAGACAAAGTTGTTATFAGAGGACACATTG 3474
QY 702 GTTATACTCAAGCTTGCTAATATATGTTGGTAAAGCTTGTATGAAGCTATTGGATAGATGT 761
Db 3475 GTTATACTCAAGCTTGCTAATATATGTTGGTAAAGCTTGTATGAAGCTATTGGATAGATGT 3534
QY 762 AAGCAGATTATTGCAAGTCTAATGTAGATATGTTAGTCTTGAAAGATCATTTGCCGGAA 821
Db 3535 AAGCAGATTATTGCAAGTCTAATGTAGATATGTTAGTCTTGAAAGATCATTTGCCGGAA 3594
QY 822 GAGCTTGTAAAGAGATAATTGATAGACGTTAAAGAGCTTGGTTTGGAGGTACCTTAAAGTA 881
Db 3595 GAGCTTGTAAAGAGATAATTGATAGACGTTAAAGAGCTTGGTTTGGAGGTACCTTAAAGTA 3654
QY 882 AAGAAACATGCTCGAATGTACATAAAGCCTTACGTCGGATGATATTGATTAGTCAAG 941
Db 3655 AAGAAACATGCTCGAATGTACATAAAGCCTTACGTCGGATGATATTGATTAGTCAAG 3714
QY 942 TTGCTTTTGAAGAGGATCACACCAATCTAGATGCGTGTGCTCTTCATTTTCGCTGTT 1001
Db 3715 TTGCTTTTGAAGAGGATCACACCAATCTAGATGCGTGTGCTCTTCATTTTCGCTGTT 3774
QY 1002 GCATATTGCAATGTGAAGACCGCAACAGATCTTTTAAACCTTGATCTTCCGATGTCAAC 1061
Db 3775 GCATATTGCAATGTGAAGACCGCAACAGATCTTTTAAACCTTGATCTTCCGATGTCAAC 3834
QY 1062 CATAGGAATCCGAGGGATATACGGTCTTCATGTTGCTCGGATCGCGAAGGACCAAA 1121
Db 3835 CATAGGAATCCGAGGGATATACGGTCTTCATGTTGCTCGGATCGCGAAGGACCAAA 3894
QY 1122 TTGATCTATCTCTATTGGAAGAGGTGCAAGTGCATCAGAAGCACTTTGGAAGGTAGA 1181
Db 3895 TTGATCTATCTCTATTGGAAGAGGTGCAAGTGCATCAGAAGCACTTTGGAAGGTAGA 3954
QY 1182 ACCGCACTCATGATCGCAAAAACAAGCCACTATGCGGTTGGAATGTAATATATATCCCGAG 1241
Db 3955 ACCGCACTCATGATCGCAAAAACAAGCCACTATGCGGTTGGAATGTAATATATATCCCGAG 4014
QY 1242 CAATGCAAGCATTTCTCAAGAGCGGACTATGCTAGAAATACTAGACGAGAGACAAA 1301
Db 4015 CAATGCAAGCATTTCTCAAGAGCGGACTATGCTAGAAATACTAGACGAGAGACAAA 4074
QY 1302 CGAGAACAAATTCCTAGAGATGTTCCCTCCCTCTTTTGCAGTGGCGGCGATGAATTTGAAG 1361
Db 4075 CGAGAACAAATTCCTAGAGATGTTCCCTCCCTCTTTTGCAGTGGCGGCGATGAATTTGAAG 4134

QY 1362 ATGACGCTGCTCGATCTTTGAAATAG----- 1387
Db 4135 ATGACGCTGCTCGATCTTTGAAATAGAGGTATCTATCAAGTCTTATTTCTTATATGTTG 4194
QY 1388 ----- 1387
Db 4195 AATTAAATTTATGTCCTCTCTATTAGGAACTGAGTGAACCTAATGATAACTTATTTCTTGT 4254
QY 1388 -----AGTTGCACTTGTCTCAAGTCTTTTCCAAAGGAGACACAAGCTGCA 1433
Db 4255 GTCGCTCCACTGTTTACTTGCACCTGCTCAAGTCTTTTCCAAAGGAGACACAAGCTGCA 4314
QY 1434 ATGGAGATCGCCGAATGAAGGAAACATGTGAGTTCATAGTACTAGCCTCGAGCCTGAC 1493
Db 4315 ATGGAGATCGCCGAATGAAGGAAACATGTGAGTTCATAGTACTAGCCTCGAGCCTGAC 4374
QY 1494 CGTCTCACTGTTACCAAGAGACATCACCGGTGTAAGATAGCACCTTTTCAGAAATCCTA 1553
Db 4375 CGTCTCACTGTTACCAAGAGACATCACCGGTGTAAGATAGCACCTTTTCAGAAATCCTA 4434
QY 1554 GAAGAGCATCAAGTAGACTTAAAGCGCTTTCTTAAACC----- 1592
Db 4435 GAAGAGCATCAAGTAGACTTAAAGCGCTTTCTTAAACC----- 1592
QY 1593 ----- 1592
Db 4495 CATCGGACTCCTTATCACAAAAACAACTAAATGATCTTTAAACATGGTTTGTACT 4554
QY 1593 -----GTGGAACTCGGGAAACGATTTCTCCGCGC 1622
Db 4555 TCGTGTCTGACCTTGTTTTATCATCAGTGGAACTCGGAAACGATTTCTCCGCGC 4614
QY 1623 TGTTCGGCAGTCTCGACAGATTATGAACCTGTAGGACTTGACTCAACTGGCTTCCGGA 1682
Db 4615 TGTTCGGCAGTCTCGACAGATTATGAACCTGTAGGACTTGACTCAACTGGCTTCCGGA 4674
QY 1683 GAAGCAGACACTGCTGAGAAAGCAGCTACAAAAGAGCAAGGTACATGAAATACAAG 1742
Db 4675 GAAGCAGACACTGCTGAGAAAGCAGCTACAAAAGAGCAAGGTACATGAAATACAAG 4734
QY 1743 ACACATAAAGAGCCCTTTAGTGAGGACAAATTTGGAATTAGGAAATTCGTCCTGACAGAT 1802
Db 4735 ACACATAAAGAGCCCTTTAGTGAGGACAAATTTGGAATTAGGAAATTCGTCCTGACAGAT 4794
QY 1803 TCGACTTCTCCACATCGAAATCAACCGGTGAAAGAGGTCTAACCGTAAACTCTCTCAT 1862
Db 4795 TCGACTTCTCCACATCGAAATCAACCGGTGAAAGAGGTCTAACCGTAAACTCTCTCAT 4854
QY 1863 CGTCGTCGTGAGACTCTTGCCTCTTAGTGTAAATTTTCTGCTGACCATATAATTTCTGTT 1922
Db 4855 CGTCGTCGTGAGACTCTTGCCTCTTAGTGTAAATTTTCTGCTGACCATATAATTTCTGTT 4914
QY 1923 TCATGATGACTGTAACTGTTTATGCTATCGTTGGCGTCATATAGTTTGGCTCTTCTGTTT 1982
Db 4915 TCATGATGACTGTAACTGTTTATGCTATCGTTGGCGTCATATAGTTTGGCTCTTCTGTTT 4974
QY 1983 TGCATCCTGTGTATTATTGCTGAGGTGCTTCAACAAATGTTGTACAACTTTGAACC 2042
Db 4975 TGCATCCTGTGTATTATTGCTGAGGTGCTTCAACAAATGTTGTGTAACTTTGAACC 5034
QY 2043 AATGGTATACAGATTTGTAAATATATATTTATGTACATCAACAATAA 2088
Db 5035 AATGGTATACAGATTTGTAAATATATATTTATGTACATCAACAATAA 5080

RESULT 9
AAV43658/C
ID AAV43658 standard; DNA; 9919 BP.
XX
AC AAV43658;
XX
DT 29-SEP-1998 (first entry)
XX

DE A. thaliana non-inducible immunity-1 (NIM1) genomic sequence.

XX Non-inducible immunity-1 gene; NIM1 gene; disease resistance; mutant;
KW transgenic plant; SAR; systemic acquired resistance; CIM; pathogen;
KW constitutive immunity; agriculture; ss.

XX Arabidopsis thaliana.

XX W09826082-A1.

XX 18-JUN-1998.

XX 12-DEC-1997; 97WO-EP07012.

XX 20-JUN-1997; 97US-0880179.

XX 13-DEC-1996; 96US-0033177.

XX 27-DEC-1996; 96US-0034379.

XX 27-DEC-1996; 96US-0034382.

XX 10-JAN-1997; 97US-0034730.

XX 10-JAN-1997; 97US-0035021.

XX 10-JAN-1997; 97US-0035022.

XX (NOVS) NOVARTIS AG.

XX Friedrich LB, Hunt MD, Lawton KA, Ryals JA, Steiner HY;

XX Uknes SJ;

XX WPI; 1998-348536/30.

XX Use of non-inducible immunity-1 gene - for transforming plants to
XX produce transgenic plants having a broad spectrum disease resistance
XX Example 11; Pages 98-107; 205pp; English.

XX This represents the genomic sequence of the Arabidopsis thaliana
XX noninducible immunity-1 (NIM1) gene. The invention provides a chimeric
XX gene comprising a promoter active in plants operatively linked to a DNA
XX molecule that encodes an altered form of the NIM1 protein. Plant cells
XX stably transformed with a recombinant vector comprising such a chimeric
XX gene have a broad spectrum of disease resistance. The altered NIM1
XX proteins act as dominant-negative regulators of the systemic acquired
XX resistance (SAR) signal transduction pathway. The transgenic plants
XX transformed with an altered NIM1 gene exhibits constitutive SAR
XX expression which is higher in the transformed plants than in a wild-type
XX plant. The products can be used for producing plants with a broad
XX spectrum disease resistance. Overexpression of NIM1 mimics the effects
XX of inducer compounds that induce constitutive immunity (CIM) phenotype in
XX plants. The inventions can be used with plants such as e.g. rice, wheat,
XX barley, rye, corn, potato, carrot, sweet potato, sugar beet, bean, pea,
XX chicory, lettuce, cabbage, cauliflower, broccoli, turnip, radish,
XX spinach, asparagus, onion, garlic, eggplant, pepper, celery, carrot,
XX squash, pumpkin, zucchini, cucumber, apple, pear, quince, melon, plum,
XX cherry, peach, nectarine, apricot, strawberry, grape, raspberry,
XX blackberry, pineapple, avocado, papaya, mango, banana, soybean, tobacco,
XX tomato, sorghum and sugarcane. The plants produced are resistant to plant
XX pathogens such as viruses, viroids, fungi, bacteria, insects such as
XX aphids and lepidoptera and nematodes. The plants produced can be used in
XX agriculture.

XX Sequence 9919 BP; 3150 A; 1825 C; 1737 G; 3207 T; 0 other;

Query Match 83.7%; Score 1760; DB 19; Length 9919;
Best Local Similarity 87.5%; Pred. No. 0;
Matches 2088; Conservative 0; Mismatches 0; Indels 298; Gaps 3;

QY 1 TCGATCTTTAACCAATCCAGTTGATAGGCTCTCTTCCTGATAGCAGAGATCTCTTTA 60
DB |||||||

QY 61 ATTTGTGAATTTCAATTCGGAACCTGTTGATGGACACACCATTCATGGATTCGCCG 120
DB |||||||

QY 3807 ATTTGTGAATTTCAATTCGGAACCTGTTGATGGACACACCATTCATGGATTCGCCG 3748
DB |||||||

QY 121 ATTCTTATGAATCAGCAGCACTAGTTTCGTCGTACCGATACACACGACTCCTCTATTG 180
DB |||||||

QY 3747 ATTCTTATGAATCAGCAGCACTAGTTTCGTCGTACCGATACACACGACTCCTCTATTG 3688
DB |||||||

QY 181 TTTATCTGGCGCGCGGAACAAGTACTACCGGACCTGATGTATCTGCTCTGCAATTTGCTCT 240
DB |||||||

QY 3687 TTTATCTGGCGCGCGGAACAAGTACTACCGGACCTGATGTATCTGCTCTGCAATTTGCTCT 3628
DB |||||||

QY 241 CCAACAGCTTCGAATCCGTCCTTTGACTCGCGGAGATTTTCTACAGCAGCGCTAAGCTTG 300
DB |||||||

QY 3627 CCAACAGCTTCGAATCCGTCCTTTGACTCGCGGAGATTTTCTACAGCAGCGCTAAGCTTG 3568
DB |||||||

QY 301 TTCTCTCGGCGCGCGGGAAGTTTCTTTCCACCGGTCGGTTTTCGTCAGCAGAGCTCTT 360
DB |||||||

QY 3567 TTCTCTCGGCGCGCGGGAAGTTTCTTTCCACCGGTCGGTTTTCGTCAGCAGAGCTCTT 3508
DB |||||||

QY 361 TCTTCAAGAGCGCTTTAGCGCGCGCTAAGAGGAGAAAGACTCCAACAACACCGCGCGCG 420
DB |||||||

QY 3507 TCTTCAAGAGCGCTTTAGCGCGCGCTAAGAGGAGAAAGACTCCAACAACACCGCGCGCG 3448
DB |||||||

QY 421 TGAAGCTCGAGCTTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGATTCGGTTGTGA 480
DB |||||||

QY 3447 TGAAGCTCGAGCTTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGATTCGGTTGTGA 3388
DB |||||||

QY 481 CTGTTTTCGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCGCTTAAGGAGTTTCTGAAT 540
DB |||||||

QY 3387 CTGTTTTCGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCGCTTAAGGAGTTTCTGAAT 3328
DB |||||||

QY 541 GCGCAGACGAGAATTGCTGCACGTGCTTCCGCGCGCGCGGTGGATTTCATGTTGGAGG 600
DB |||||||

QY 3327 GCGCAGACGAGAATTGCTGCACGTGCTTCCGCGCGCGCGGTGGATTTCATGTTGGAGG 3268
DB |||||||

QY 601 TTCTCTATTTGGCTTCATCTTCAAGATCCCTGAATTAATTAATTAATTAATTAATTAATTAAT 649
DB |||||||

QY 3267 TTCTCTATTTGGCTTCATCTTCAAGATCCCTGAATTAATTAATTAATTAATTAATTAATTAAT 3208
DB |||||||

QY 650 ----- 649

QY 3207 ACCATCTGCATTAAGCTATGGTTACACATTCATGAATATGTTCTTCTCAGTACTGTGA 3148
DB |||||||

QY 650 -----TCAGAGGCACTTATTGGAGCTTGTAGACAAAGTTGTTATAGAGGACACATTG 701
DB |||||||

QY 3147 TTTGTAATTTTCAGAGGCACTTATTGGAGCTTGTAGACAAAGTTGTTATAGAGGACACATTG 3088
DB |||||||

QY 702 GTTATCTCAAGCTTGTCTATATATATGTTGTTAAAGCTTGTATGAAGCTATTGGATAGATGT 761
DB |||||||

QY 3087 GTTATCTCAAGCTTGTCTATATATATGTTGTTAAAGCTTGTATGAAGCTATTGGATAGATGT 3028
DB |||||||

QY 762 AAAGAGATTTATGTCAGTCTTAATGTAGATATGTTTAGTCTTCAAAAGTCATTGCCGGAA 821
DB |||||||

QY 3027 AAAGAGATTTATGTCAGTCTTAATGTAGATATGTTTAGTCTTCAAAAGTCATTGCCGGAA 2968
DB |||||||

QY 822 GAGCTTCTTAAAGAGATAATTTGATAGACGTTAAAGAGCTTGGTTTGGAGGTACCTAAAGTA 881
DB |||||||

QY 2967 GAGCTTCTTAAAGAGATAATTTGATAGACGTTAAAGAGCTTGGTTTGGAGGTACCTAAAGTA 2908
DB |||||||

QY 882 AAGNAACATGTCGAATGTACATAAGGCACTTGCCTCGGATGATATGATGATAGTCAAG 941
DB |||||||

QY 2907 AAGNAACATGTCGAATGTACATAAGGCACTTGCCTCGGATGATATGATGATAGTCAAG 2848
DB |||||||

QY 942 TTGCTTTTAAAGAGGATACACCAATCTAGATGATGCGGTGCTCTTCAATTTTCGCTGTT 1001
DB |||||||

QY 2847 TTGCTTTTAAAGAGGATACACCAATCTAGATGATGCGGTGCTCTTCAATTTTCGCTGTT 2788
DB |||||||

QY 1002 GCATTTGCAATGTGAAGACCGCAACAGATCTTTTAAAACCTTGATCTTGCCGATGTCAAC 1061
DB |||||||

QY 2787 GCATTTGCAATGTGAAGACCGCAACAGATCTTTTAAAACCTTGATCTTGCCGATGTCAAC 2728
DB |||||||

QY 1062 CATAGGNAATCCGAGGGGATATAGGGTCTTCATGTTGCTCGGATGCGGAGGAGGACACAA 1121
DB |||||||

QY 2727 CATAGGNAATCCGAGGGGATATAGGGTCTTCATGTTGCTCGGATGCGGAGGAGGACACAA 2668
DB |||||||

QY 1122 TTGATACTATCTCTATTGGAAAAAGGTGCAAGTGCATCAGAAGCAACTTTTGGAAAGGTAGA 1181
DB |||||||

Db 2667 TTGATACTATCTCTATTGGAAAAAGTGCAGTGCATCAGAAGCAACTTTTGGAGGTAGA 2608
Qy 1182 ACCGCACTCATGATCGCAAAACAGCCACTATGCGGTTCGAATGCTAATAATATATCCCGGAG 1241
Db 2607 ACCGCACTCATGATCGCAAAACAGCCACTATGCGGTTCGAATGCTAATAATATATCCCGGAG 2548
Qy 1242 CAATGCAAGCAATCTCTCAAGGCGGACTATGTGTGAGAAATAGTAGAGCAAGAGACAAA 1301
Db 2547 CAATGCAAGCAATCTCTCAAGGCGGACTATGTGTGAGAAATAGTAGAGCAAGAGACAAA 2488
Qy 1302 CGAGAACAAATTCCTAGAGATGTCCTCCCTCTTTTCCAGTGCGGCGGATGAATTTGAAG 1361
Db 2487 CGAGAACAAATTCCTAGAGATGTCCTCCCTCTTTTCCAGTGCGGCGGATGAATTTGAAG 2428
Qy 1362 ATGAGCGTGTCTGATCTTGAATAATG----- 1387
Db 2427 ATGAGCGTGTCTGATCTTGAATAATGAGGTATCTATCAAGTCTTATTTCTTATATGTTG 2368
Qy 1388 ----- 1387
Db 2367 AATTAAATTTATGCTCTCTCTATTAGGAACTGAGTGAACCTAATGATAAATATTCTTTGT 2308
Qy 1388 -----AGTTGCATCTGCTCAACGCTCTTTTCCACGGAGACACAGCTGCA 1433
Db 2307 GTCGTCCACTGTTTAGTTGCACTTGCTCAACGCTCTTTTCCACGGAGACACAGCTGCA 2248
Qy 1434 ATGAGATCGCGCAAAATGAAGGAAACATGTGAGTTCACTAGCTAGCCTCGAGCCTGAC 1493
Db 2247 ATGAGATCGCGCAAAATGAAGGAAACATGTGAGTTCACTAGCTAGCCTCGAGCCTGAC 2188
Qy 1494 CGTCTCACTGTGTAGAGAGAACATCACCGGGTGAAGATAGCACCTTTTCAGAACTCTA 1553
Db 2187 CGTCTCACTGTGTAGAGAGAACATCACCGGGTGAAGATAGCACCTTTTCAGAACTCTA 2128
Qy 1554 GAAGAGCATCAAGTAGACTAAAGCGCTTCTTAAAC----- 1592
Db 2127 GAAGAGCATCAAGTAGACTAAAGCGCTTCTTAAACCGGTATGGAATTCACCCCACTT 2068
Qy 1593 ----- 1592
Db 2067 CATCGGACTCTTATCACAAAAACAATAATGATCTTTAAACATGTTTGTGTACT 2008
Qy 1593 -----GTGGAACCTCGGAAACGATCTTCCCGCGC 1622
Db 2007 TGTCTGTGACCTTGTGTTTTTATCATCATGGAACCTCGGAAACGATCTTCCCGCGC 1948
Qy 1623 TGTTCGCGAGTGTCTCGACCATTTAGACTGTGAGACTTGACTCAACTGGCTTGGGA 1682
Db 1947 TGTTCGCGAGTGTCTCGACCATTTAGACTGTGAGACTTGACTCAACTGGCTTGGGA 1888
Qy 1683 GAAGACGACACTGCTGAGAAACGACTCAAAAGAAAGCAAGGTACATGGAATACAAGAG 1742
Db 1887 GAAGACGACACTGCTGAGAAACGACTCAAAAGAAAGCAAGGTACATGGAATACAAGAG 1828
Qy 1743 ACACATAAAGAGGCTTTAGTAGAGACAAATTTGGAATTAGGAATTCGTCCTCGACAGAT 1802
Db 1827 ACACATAAAGAGGCTTTAGTAGAGACAAATTTGGAATTAGGAATTCGTCCTCGACAGAT 1768
Qy 1803 TCGACTTCTCCACATCGAATCAACCGGTGGAAGAGGTCTAACCGTAACACTCTCTCAT 1862
Db 1767 TCGACTTCTCCACATCGAATCAACCGGTGGAAGAGGTCTAACCGTAACACTCTCTCAT 1708
Qy 1863 CGTCGTGGTGAGACTCTTGCTCTTATAGTGTAAATTTTGTGTACCATATAAATCTGTTT 1922
Db 1707 CGTCGTGGTGAGACTCTTGCTCTTATAGTGTAAATTTTGTGTACCATATAAATCTGTTT 1648
Qy 1923 TCATGAGACTGTAACTGTTTATGCTATATCGTTGGCGCTCATATAGTTTCGCTCTTCGTTT 1982
Db 1647 TCATGAGACTGTAACTGTTTATGCTATATCGTTGGCGCTCATATAGTTTCGCTCTTCGTTT 1588
Qy 1983 TGCATCTCTGTATTATTGCTGCGAGGTGCTTCAACAACAAATGTTGAACAATTTGAACC 2042
Db 1588 -----

Db 1587 TGCATCTCTGTATTATTGCTGCAGGTGTGCTTCAACAAATGTTGTAAACAATTTGAACC 1528
Qy 2043 AATGGTATACAGATTTGTAAT 2088
Db 1527 AATGGTATACAGATTTGTAAT 1482
RESULT 10
AAV04631/c
ID AAV04631 standard; DNA; 9919 BP.
XX AAV04631;
AC AAV04631;
XX
DT 17-JUN-1998 (first entry)
XX
DE Arabidopsis thaliana BAC-04 containing the NIM1 gene.
KW NIM1; noninducible immunity; disease resistance; plants;
KW SAR gene expression; ss.
XX
OS Arabidopsis thaliana.
PN WO9749822-A1.
XX
PD 31-DEC-1997.
XX
PF 10-MAR-1997; 97WO-EP01218.
XX
PR 10-JAN-1997; 97US-0035022.
PR 21-JUN-1996; 96US-0020272.
PR 30-AUG-1996; 96US-0024883.
PR 13-DEC-1996; 96US-0033177.
PR 27-DEC-1996; 96US-0773559.
XX
PA (NOVS) NOVARTIS AG.
XX
PI Delaney TP, Ellis DM, Friedrich LB, Johnson JE;
PI Lawton KA, Ryals JA, Weymann K;
XX
WPI: 1998-077185/07.
XX
PT NIM1 gene which allows activation in plant of systemic acquired
PT resistance - useful to confer broad spectrum disease resistance in
PT plants, specifically crop plants, e.g. rice, wheat, barley, rye and
PT corn
XX
PS Claim 4; Fig 14; 153pp; English.
XX
CC The sequence is that of the 9.9kb region of clone BAC-04 containing
CC the NIM1 (noninducible immunity) gene. It may be used to confer a
CC broad spectrum disease resistance in plants, specifically crop plants,
CC e.g. rice, wheat, barley, rye and corn. The NIM1 gene can be used to
CC confer universal disease susceptibility to plant cells, and their
CC progeny. It can also be used in a screening method for identifying
CC compounds capable of inducing broad spectrum disease resistance in
CC plants, while the plant cells, and their progeny, can be used to
CC isolate a gene fragment which allows expression of broad spectrum
CC disease resistance in plants, or to incorporate the resistant trait
CC into plant lines through breeding.
XX
SQ Sequence 9919 BP; 3150 A; 1826 C; 1737 G; 3206 T; 0 other;
Query Match 83.7%; Score 1760; DB 19; Length 9919;
Best Local Similarity 87.5%; Pred. No. 0;
Matches 2088; Conservative 0; Mismatches 0; Indels 298; Gaps 3;
Qy 1 TCGATCTTTAACCAATCCAGTTGATAAGTCTCTCGTTGATTAGCAGAGATCTTTTA 60
Db 3867 TCGATCTTTAACCAATCCAGTTGATAAGTCTCTCGTTGATTAGCAGAGATCTTTTA 3808
Qy 61 ATTTGTGAATTTCAATTCATCGAACCTGTTGATGGACACCACTTATGATGATTCGCGC 120
Db 3807 ATTTGTGAATTTCAATTCATCGAACCTGTTGATGGACACCACTTATGATGATTCGCGC 3748

QY 121 ATTCTTATGAATCAGCAGCACTAGTTTCGTCCGTACCGATAACACCGACTCCTCTATTG 180
DB 3747 ATTCTTATGAATCAGCAGCACTAGTTTCGTCCGTACCGATAACACCGACTCCTCTATTG 3688
QY 181 TTTATCTGGCCGCCGAACAAGTACTACCGGACTGATGTATCTGCTCTCAATTTGCTCT 240
DB 3687 TTTATCTGGCCGCCGAACAAGTACTACCGGACTGATGTATCTGCTCTCAATTTGCTCT 3628
QY 241 CCAACAGCTTCGAATCCGCTTTGACTCGCGGATGATTTCTACAGCGAGCTTAAGCTTG 300
DB 3627 CCAACAGCTTCGAATCCGCTTTGACTCGCGGATGATTTCTACAGCGAGCTTAAGCTTG 3568
QY 301 TTCTCTCCGAGCGCGGAAGTTCTTTCCACCGTGCCTTTTGTACGCGAGAGCTCTT 360
DB 3567 TTCTCTCCGAGCGCGGAAGTTCTTTCCACCGTGCCTTTTGTACGCGAGAGCTCTT 3508
QY 361 TCTTCAAGAGCGCTTTAGCCCGCGCTAAGAGGAGAAAGACTCCAACAACACCGCGCGCG 420
DB 3507 TCTTCAAGAGCGCTTTAGCCCGCGCTAAGAGGAGAAAGACTCCAACAACACCGCGCGCG 3448
QY 421 TGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGATTCGGTTGTGA 480
DB 3447 TGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGATTCGGTTGTGA 3388
QY 481 CTGTTTTGGCTTATGTTTACAGCAGCAGTGAAGCGCGCCCTAAAGGAGTTTCTCGAAT 540
DB 3387 CTGTTTTGGCTTATGTTTACAGCAGCAGTGAAGCGCGCCCTAAAGGAGTTTCTCGAAT 3328
QY 541 GCGCAGACGAGAAATGCTGCCACGTGGCTTGC CGCGCGCGGGTTCATGTTGGAGG 600
DB 3327 GCGCAGACGAGAAATGCTGCCACGTGGCTTGC CGCGCGCGGGTTCATGTTGGAGG 3268
QY 601 TTCTCTATTGGCTTTCATCTTCAAGATCCCTGAATTAATTACTCTCTA----- 649
DB 3267 TTCTCTATTGGCTTTCATCTTCAAGATCCCTGAATTAATTACTCTCTAAGGTAAGCAAC 3208
QY 650 ----- 649
DB 3207 ACCATCTGCATTAAAGCTATGTTACACATTCAATGATATGTTCTTACTTGAAGTACTTGA 3148
QY 650 -----TCAGAGGCACTTATTTGGAGTGTAGACAAAGTTGTTATAGAGGACACATTG 701
DB 3147 TTTGTATTTCCAGAGGCACCTTATTTGGAGTGTAGACAAAGTTGTTATAGAGGACACATTG 3088
QY 702 GTTATACTCAAGCTTGTCTAATATATCTGTTAAAGCTTGTATGAGCTATTTGATAGATGT 761
DB 3087 GTTATACTCAAGCTTGTCTAATATATGTTAAAGCTTGTATGAGCTATTTGATAGATGT 3028
QY 762 AAAGAGATTATTGCTCAAGTCTAATGTAGATATGTTTAGTCTTGAAGAGTCAATTGCCGGA 821
DB 3027 AAAGAGATTATTGCTCAAGTCTAATGTAGATATGTTTAGTCTTGAAGAGTCAATTGCCGGA 2968
QY 822 GAGCTTGTAAAGAGATAATTGTATAGACGTAAAGAGCTTGGTTTGGAGTACCTAAAGTA 881
DB 2967 GAGCTTGTAAAGAGATAATTGTATAGACGTAAAGAGCTTGGTTTGGAGTACCTAAAGTA 2908
QY 882 AAGAAACATGCTCGAATGTACATAAGGCATTGACTCGGATGATATGAGTTAGTCAAG 941
DB 2907 AAGAAACATGCTCGAATGTACATAAGGCATTGACTCGGATGATATGAGTTAGTCAAG 2848
QY 942 TTGCTTTTGAAGAGGATCACACCAATCTAGATGTCGTGCTCTTCATTTCCGCTGTT 1001
DB 2847 TTGCTTTTGAAGAGGATCACACCAATCTAGATGTCGTGCTCTTCATTTCCGCTGTT 2788
QY 1002 GCATATGCAATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTTCCGATGTCAAC 1061
DB 2787 GCATATGCAATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTTCCGATGTCAAC 2728
QY 1062 CATAGGAATCCGAGGGATATAGGTCCTCATGTTGCTGCCATGCGGAGGAGGCACAA 1121
DB 2727 CATAGGAATCCGAGGGATATAGGTCCTCATGTTGCTGCCATGCGGAGGAGGCACAA 2668

QY 1122 TTGATACTATCTCTATTGGAAAAAGTGCAAGTGCATCAGAAACAACCTTTTGAAGGTAGA 1181
DB 2667 TTGATACTATCTCTATTGGAAAAAGTGCAAGTGCATCAGAAACAACCTTTTGAAGGTAGA 2608
QY 1182 ACCGCACTCATGATCGCAAAACAAGCCACTATGGCGGTTGAATGTAAATAATATCCGGAG 1241
DB 2607 ACCGCACTCATGATCGCAAAACAAGCCACTATGGCGGTTGAATGTAAATAATATCCGGAG 2548
QY 1242 CAATGCAAGCATTTCTCTCAAAGCCGAGCTATGTAGAAAATACTAGAGCAAGAACAACAA 1301
DB 2547 CAATGCAAGCATTTCTCTCAAAGCCGAGCTATGTAGAAAATACTAGAGCAAGAACAACAA 2488
QY 1302 CGAGAACAAATTCCTPAGAGATGTTCCCTCCTCTTTTGCAGTGGCGCGCATGAATTTGAAG 1361
DB 2487 CGAGAACAAATTCCTPAGAGATGTTCCCTCCTCTTTTGCAGTGGCGCGCATGAATTTGAAG 2428
QY 1362 ATGAGCGTCTCGATCTTTCGAAAATAG----- 1387
DB 2427 ATGAGCGTCTCGATCTTTCGAAAATAGAGGTATCTATCAAGTCCTTATTTCTTATATGTTTG 2368
QY 1388 ----- 1387
DB 2367 AATTAATTTATGTCCTCTCTCTATTAGGAAACTGAGTGAACATAATGATAACTATTTCTTGT 2308
QY 1388 -----AGTTGCACCTTCTCAACGCTCTTTTCCAAACGGAAGCAACAGCTGCA 1433
DB 2307 GTCGTCCACTGTTTATGTTGCACCTTCTCAACGCTCTTTTCCAAACGGAAGCAACAGCTGCA 2248
QY 1434 ATGAGAGTCGCCGAAATGAAGGGAACATGTGAGTTTCATAGTACTAGCTAGCTCGAGCTGAC 1493
DB 2247 ATGAGAGTCGCCGAAATGAAGGGAACATGTGAGTTTCATAGTACTAGCTCGAGCTGAC 2188
QY 1494 CCTCTACTGTGTACGAGAGAACATCACC GGGTGTAAAGATAGCACCTTTTCAGAACTCTA 1553
DB 2187 CGTCTACTGTGTACGAGAGAACATCACC GGGTGTAAAGATAGCACCTTTTCAGAACTCTA 2128
QY 1554 GAAGAGCATCAAAGTAGACTTAAAGCGCTTCTTAAACCC----- 1592
DB 2127 GAAGAGCATCAAAGTAGACTTAAAGCGCTTCTTAAACCCGGTATGATGATTCACCCACTT 2068
QY 1593 ----- 1592
DB 2067 CATCGGACTCCTTATCACAAAAACAACATAAATGATCTTTAAACATGGTTTGTCTACT 2008
QY 1593 -----GTGGAACCTCGGAAACAGATCTTCCCGCGC 1622
DB 2007 TGCTGTCTGACCTGTTTTTTTTTATCATCAGTGGAACTCGGAAACAGATCTTCCCGCGC 1948
QY 1623 TGTTCGGCAGTGTCTGACAGATTATGAACGTGTGAGGACTTGACTCAACTGGCTTGGCGA 1682
DB 1947 TGTTCGGCAGTGTCTGACAGATTATGAACGTGTGAGGACTTGACTCAACTGGCTTGGCGA 1888
QY 1683 GAAGACGACACTGCTGAGAAACGACTACAAAAGAGCAAAAGGTACATGGAATAACAAG 1742
DB 1887 GAAGACGACACTGCTGAGAAACGACTACAAAAGAGCAAAAGGTACATGGAATAACAAG 1828
QY 1743 ACACATAAGAGGCTTTTAGTAGAGACAAATTTAGGAATTCGTCCCTGACAGAT 1802
DB 1827 ACACATAAGAGGCTTTTAGTAGAGACAAATTTAGGAATTCGTCCCTGACAGAT 1768
QY 1803 TCGACTTCTCCACATCGAAATCAACCGGTGGAAGAGTCTAACCCTTAACTCTCAT 1862
DB 1767 TCGACTTCTCCACATCGAAATCAACCGGTGGAAGAGTCTAACCCTTAACTCTCAT 1708
QY 1863 CGTCGTGGTGAGACTCTTGCTCTTAGTGTAAATTTTGTGTGTTGCTGTACCATATATCTGTTT 1922
DB 1707 CGTCGTGGTGAGACTCTTGCTCTTAGTGTAAATTTTGTGTGTTGCTGTACCATATATCTGTTT 1648
QY 1923 TCATGATGACTGTAACTGTTTATGCTATCCTTGGCGTCATATAGTTCGCTTCCTGTTT 1982
DB 1647 TCATGATGACTGTAACTGTTTATGCTATCCTTGGCGTCATATAGTTCGCTTCCTGTTT 1588
QY 1983 TGCATCCTGTGATATTATTGCTGCAGGTGCTTCAACAAATGTTGTAAACAAATTTGAACC 2042

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Db 1587 TGCATCCTGTGTATTATTCGTGCAGGTGTCTTCAACAAATGTTGTAAACAATTTGAACC 1528
QY 2043 AATGGTATACAGATTGTAATATATATATTTATGTACATCAACAATAA 2088
Db 1527 AATGGTATACAGATTGTAATATATATATTTATGTATCATCAACAATAA 1482

RESULT 11
AAV16850
ID AAV16850 standard; DNA; 7548 BP.
AC AAV16850;
XX
XX
DT 17-AUG-1998 (first entry)
XX
DE Arabidopsis thaliana 7.5kb region containing NPR1 gene.
XX
KW NPR1 gene; acquired resistance; disease; plant pathogens; bacteria;
KW mycoplasma; fungi; insects; nematodes; viruses; viroids;
KW transgenic; ds.
XX
OS Arabidopsis thaliana.
XX
XX WO9806748-A1.
XX
XX 19-FEB-1998.
XX
XX 08-AUG-1997; 97WO-US13994.
XX
XX 16-MAY-1997; 97US-0046769.
PR 09-AUG-1996; 96US-0023851.
PR 10-JAN-1997; 97US-0035166.
XX
XX (GEO ) GEN HOSPITAL CORP.
PA (UYDU-) UNIV DUKE.
XX
XX Ausubel FM, Cao H, Dong X, Glazebrook J;
PI
XX WPI; 1998-159458/14.
XX
XX New isolated plant acquired resistance polypeptide gene - useful
PT for, e.g. producing plants with increased resistance to pathogens
PT such as bacteria
XX
XX Claim 8; Fig 4; 127pp; English.
XX
XX The sequence is that of a 7.5 kb genomic region which contains
CC the acquired resistance gene NPR1. The gene may be used in the
CC production of transgenic cells which can produce the encoded
CC acquired resistance protein. Such transgenic plants cells are
CC useful in the production of plants having an increased level
CC of resistance against disease caused by plant pathogens, e.g.
CC bacteria, mycoplasmas, fungi, insects, nematodes, viruses,
CC and viroids.
XX
XX Sequence 7548 BP; 2347 A; 1468 C; 1397 G; 2336 T; 0 other;
SQ

Query Match 83.1%; Score 1748.4; DB 19; Length 7548;
Best Local Similarity 87.5%; Pred. No. 0;
Matches 2087; Conservative 0; Mismatches 1; Indels 298; Gaps 4;

QY 1 TCGATCTTTAAACCAATCCAGTTGATAAGGTCTCTTCGTTGATTAGCAGAGATCTCTTTA 60
Db 2701 TCGATCTTTAAACCAATCCAGTTGATAAGGTCTCTTCGTTGATTAGCAGAGATCTCTTTA 2760
QY 61 ATTGTGAAATTTCAATTCATCGAACTGTTGATGACACACCACCATTTGATTCGCGG 120
Db 2761 ATTGTGAAATTTCAATTCATCGAACTGTTGATGACACACCACCATTTGATTCGCGG 2820
QY 121 ATTCTTATGAATACAGACACTAGTTTCGTCGCTACCGGATACACCGACTCCTCTATTG 180
Db 2821 ATTCTTATGAATACAGACACTAGTTTCGTCGCTACCGGATACACCGACTCCTCTATTG 2880
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QY 181 TTTATCTGGCCGCCGAACAAAGTACTCACGGACCTGATGTATCTGCTCTGCAATTCGCTCT 240
Db 2881 TTTATCTGGCCGCCGAACAAAGTACTCACGGACCTGATGTATCTGCTCTGCAATTCGCTCT 2940
QY 241 CCAACAGCTTTCGAATCGCTCTTTGACTCGCCGGATGATTTCTACAGCGACGCTTAAGCTTG 300
Db 2941 CCAACAGCTTTCGAATCGCTCTTTGACTCGCCGGATGATTTCTACAGCGACGCTTAAGCTTG 3000
QY 301 TTCTCTCCGACGCCGCCGGAAGTTTCTTTCCACCGGTGCGTTTTCAGCGAGAGCTCTTT 360
Db 3001 TTCTCTCCGACGCCGCCGGAAGTTTCTTTCCACCGGTGCGTTTTCAGCGAGAGCTCTTT 3060
QY 361 TCTTCAAGAGCGCTTTAGCCGCGCTTAAGAGAGAGAAAGACTCCAACAACACGCCGCCG 420
Db 3061 TCTTCAAGAGCGCTTTAGCCGCGCTTAAGAGAGAGAAAGACTCCAACAACACGCCGCCG 3120
QY 421 TGAAGCTCGAGCTTAAGAGAGATTGCCAAGGATTACGAAGTCGGTTTTCGATTCGGTTGTGA 480
Db 3121 TGAAGCTCGAGCTTAAGAGAGATTGCCAAGGATTACGAAGTCGGTTTTCGATTCGGTTGTGA 3180
QY 481 CTGTTTGGCTTTATGTTTACAGCAGCAGAGTGAGACCGCCGCTTAAAGGAGTTTCTGAAT 540
Db 3181 CTGTTTGGCTTTATGTTTACAGCAGCAGAGTGAGACCGCCGCTTAAAGGAGTTTCTGAAT 3240
QY 541 GCGCAGACGAGAAATGCTGCCACGTGGCTTCCGCGCGCGCGGTGGATTTCATGTTGAGG 600
Db 3241 GCGCAGACGAGAAATGCTGCCACGTGGCTTCCGCGCGCGCGGTGGATTTCATGTTGAGG 3300
QY 601 TTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTAATTAATTAATTAATTAAT 649
Db 3301 TTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTAATTAATTAATTAATTAAT 3360
QY 650 ----- 649
Db 3361 ACCATCTGCATTAAGCTATGTTTACACATTCAATGAATATGTTTCTTACTTACGACTTGTGA 3420
QY 650 -----TCAGAGGCATTTATGGACGTTGTAGACAAAGCTTGTATAGAGGACACATTG 701
Db 3421 TTTGTATTTTCAGAGGCATTTATTTGGACGTTGTAGACAAAGTTGTTATAGAGGACACATTG 3480
QY 702 GTTATACTCAAGCTTGCTTAATATATATGTGGTAAAGCTTGTATGAAGCTTATTTGGATAGATGT 761
Db 3481 GTTATACTCAAGCTTGCTTAATATATGTGGTAAAGCTTGTATGAAGCTTATTTGGATAGATGT 3540
QY 762 AAAGAGATTTATGTCAGCTCTAATGTAGATATAGTTAGTCTTGAAGAGCTATTTGCCGGAA 821
Db 3541 AAAGAGATTTATGTCAGCTCTAATGTAGATATAGTTAGTCTTGAAGAGCTATTTGCCGGAA 3600
QY 822 GAGCTTGTAAAGAGATAATTTGATAGACGTAAGAGCTTGGTTTGGAGGTACCTTAAAGTA 881
Db 3601 GAGCTTGTAAAGAGATAATTTGATAGACGTAAGAGCTTGGTTTGGAGGTACCTTAAAGTA 3660
QY 882 AAGAAACATGTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAG 941
Db 3661 AAGAAACATGTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAG 3720
QY 942 TTGCTTTTGAAGAGGATTCACACCAATCTAGATGATGGTGTGCTCTTCATTTCCGCTGTT 1001
Db 3721 TTGCTTTTGAAGAGGATTCACACCAATCTAGATGATGGTGTGCTCTTCATTTCCGCTGTT 3780
QY 1002 GCATATTCGAATGTGAAGACCGCAACAGATCTTTTAAACCTTGATCTTCCGATGTCAAC 1061
Db 3781 GCATATTCGAATGTGAAGACCGCAACAGATCTTTTAAACCTTGATCTTCCGATGTCAAC 3840
QY 1062 CATAGGAATCCGAGGGGATATACGGTGTCTTCATGTTGCTCGATGCGGAAGGAGGCCACAA 1121
Db 3841 CATAGGAATCCGAGGGGATATACGGTGTCTTCATGTTGCTCGATGCGGAAGGAGGCCACAA 3900
QY 1122 TTGATACCTATCTTATTTGGAAAAAGGTCCAAGTGCATCAGAAAGCACTTTTGGAAAGGTAGA 1181
Db 3901 TTGATACCTATCTTATTTGGAAAAAGGTCCAAGTGCATCAGAAAGCACTTTTGGAAAGGTAGA 3960
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Qy 1182 ACCGACTCATGATCGCAAAACAGCCACTATGCGGCTTGAATCTAATAATATATCCCGGAG 1241
Db 3961 ACCGACTCATGATCGCAAAACAGCCACTATGCGGCTTGAATCTAATAATATATCCCGGAG 4020
Qy 1242 CAATGCAAGCAATCTCTCAAGGCGGACTATGTAGAAAATAGTAGAGCAAGAACAAA 1301
Db 4021 CAATGCAAGCAATCTCTCAAGGCGGACTATGTAGAAAATAGTAGAGCAAGAACAAA 4080
Qy 1302 CGAACAACAAATCTCTAGAGATGTTCCCTCTTTTCAGTAGGCGGCGGATGAATGAAG 1361
Db 4081 CGAACAACAAATCTCTAGAGATGTTCCCTCTTTTCAGTAGGCGGCGGATGAATGAAG 4140
Qy 1362 ATGACGCTGCTCGATCTTTGAAAATAG----- 1387
Db 4141 ATGACGCTGCTCGATCTTTGAAAATAGAGGTATCTATCAAGCTCTATTCTTATATGTTTG 4200
Qy 1388 ----- 1387
Db 4201 AATTAAATTTATGTCCTCTCTATTAGGAAACTGAGTGAACATAATGATAACTATTCTTTGT 4260
Qy 1388 -----AGTTGCACTTGCTCAACGCTCTTTTCCACGGAAGCACAAAGCTGCA 1433
Db 4261 GTCGTCACACTGTTAGTTGCACTTGCTCAACGCTCTTTTCCACGGAAGCACAAAGCTGCA 4320
Qy 1434 ATGAGATCGCCGAAATGAAGGAACATGTCAGTTTCATAGTAGCTAGCCCTCGAGCCTGAC 1493
Db 4321 ATGAGATCGCCGAAATGAAGGAACATGTCAGTTTCATAGTAGCTAGCCCTCGAGCCTGAC 4380
Qy 1494 CGTCTCACTGGTAGAGAGAACATCACCGGGTGTAAAGTAGACCTTTCAGAAATCCCTA 1553
Db 4381 CGTCTCACTGGTAGAGAGAACATCACCGGGTGTAAAGTAGACCTTTCAGAAATCCCTA 4440
Qy 1554 GAAGAGCATCAAGTAGACTTAAAGCGCTTCTTAAACG----- 1592
Db 4441 GAAGAGCATCAAGTAGACTTAAAGCGCTTCTTAAACGCGGTATGAGTTCACCCACTT 4500
Qy 1593 ----- 1592
Db 4501 CATCGGACTCCTTATACAAAAAACAATAAATGATCTTTAAACATGGTTTGTACT 4560
Qy 1593 -----GTGAACTCGGGAACGATTTCCCGCGCT 1623
Db 4561 TGCTGCTGACCTTGTTTTTTTATCATGACTGGAACCTCGGGAACGATTTCCCGCGCT 4620
Qy 1624 GTTCGGCAGTGCACGACGATTATGAACCTGAGAGCTTGACTCAACTGGCTTTCGGGAG 1683
Db 4621 GTTCGGCAGTGCACGACGATTATGAACCTGAGAGCTTGACTCAACTGGCTTTCGGGAG 4680
Qy 1684 AAGACGACTGCTG-AGAAACGACTACAAAAGAACAAAGGTACATGGAATACAAAGAG 1742
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Db 4741 ACACAAAGAGGCTTTAGTAGGACAAATTTGGAATTAGGAATTCGTCCTCGACAGAT 4800
Qy 1803 TCGACTTCTTCCACATCGAAATCAACGGTGGAAAGAGGTCTAACCGTAAACTCTCTCAT 1862
Db 4801 TCGACTTCTTCCACATCGAAATCAACGGTGGAAAGAGGTCTAACCGTAAACTCTCTCAT 4860
Qy 1863 CGTCGCGGTGAGACTCTTCCCTCTTAGTGTAATTTTGTGTACCATATAATCTCTGTTT 1922
Db 4861 CGTCGCGGTGAGACTCTTCCCTCTTAGTGTAATTTTGTGTACCATATAATCTCTGTTT 4920
Qy 1923 TCATGATGACTGTAACCTGTTATGCTATGCTTGGCGGTATATAGTTTCGCTCTTCGTTT 1982
Db 4921 TCATGATGACTGTAACCTGTTATGCTATGCTTGGCGGTATATAGTTTCGCTCTTCGTTT 4980
Qy 1983 TGCATCTGTTGTTATTTGCTGAGGTGCTTCAACAAATGCTTCAACATTTGAACC 2042
Db 4981 TGCATCTGTTGTTATTTGCTGAGGTGCTTCAACAAATGCTTCAACATTTGAACC 5040
Qy 2043 AATGGTATACAGATTTGTAATATATATTTATGATACATCAACAATAA 2088
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Db 5041 AATGGTATACAGATTTGTAATATATATTTATGATACATCAACAATAA 5086
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RESULT 12
AAV46277

ID AAV46277 standard; cDNA; 1608 BP.

XX AAV46277;

XX 16-OCT-1998 (first entry)

XX A. thaliana C-terminal truncated NIM-1 variant cDNA.

XX NIM-1; noninducible immunity; systemic acquired resistance; SAR;
KW pathogen; disease; protection; immunomodulated; plant; cereal; fruit;
KW vegetable; virus; fungi; bacteria; insect; nematode; microbicide; ss.

XX Arabidopsis thaliana.

OS Synthetic.

XX Key Location/Qualifiers

FT CDS 43..1608

FT /*tag= a

XX /product= NIM-1

PN WO9829537-A2.

XX 09-JUL-1998.

XX 23-DEC-1997; 97WO-EP07253.

XX 10-JAN-1997; 97US-0035024.

XX 27-DEC-1996; 96US-0034378.

XX (NOVS) NOVARTIS AG.

XX Friedrich LB, Molina Fernandez A, Ryals JA, Uknes SJ;

XX WPI; 1998-388119/33.

XX P-PSDB; AAW64438.

XX Protection of immunomodulated plants against pathogens - comprises
XX applying microbicide to provide increase in resistance

XX Claim 17; Page 129-132; 164pp; English.

XX This sequence encodes a truncated variant NIM-1 protein from Arabidopsis
XX thaliana. This protein is used in a method resulting in the protection of
XX an immunomodulated plant having a first level of resistance and involves
XX treatment with at least 1 microbicide that confers a second level of
XX resistance, such that the plants have a third level of resistance greater
XX than the sum of the first two levels. The method can be applied to a wide
XX variety of plants (cereals, fruits, oilseeds, vegetables etc.) to protect
XX against viruses, fungi, bacteria, insects and nematodes. The method
XX provides a high level of resistance and allows a reduction in the amount
XX of microbicide used. Since the process involves two different methods of
XX protection, it is unlikely that the pathogen will develop resistance to
XX the treatment.

XX Sequence 1608 BP; 447 A; 340 C; 385 G; 436 T; 0 other;

Query Match 76.3%; Score 1605; DB 19; Length 1608;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1605; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 51 GATCTCTTTAATTTCTGAATTTCAATTCATCGAACCTGTTGATGGACACCAACATTGAT 110

Db 1 GATCTCTTTAATTTCTGAATTTCAATTCATCGAACCTGTTGATGGACACCAACATTGAT 60

Qy 111 GGATTCGCGGATTTCTTATGAATCAGCAGCACTAGTTTCGTCGCTACCGATAACACCGAC 170

Db 61 GGATTCGCGGATTTCTTATGAATCAGCAGCACTAGTTTCGTCGCTACCGATAACACCGAC 120

QY 171 TCCTCTATTGTTTATCTGCGCGCGGAACAAGTACTCACCGGACCTGATGTATCTGCTCTG 230
Db 121 TCCTCTATTGTTTATCTGCGCGCGGAACAAGTACTCACCGGACCTGATGTATCTGCTCTG 180
QY 231 CAATTGCTCTCCAAACAGCTTCGAATCCGCTCTTTGACTCGCGCGGATGATTTCTACAGCGAC 290
Db 181 CAATTGCTCTCCAAACAGCTTCGAATCCGCTCTTTGACTCGCGCGGATGATTTCTACAGCGAC 240
QY 291 GCTAAGCTTGTCTCTCGACGCGCGGAAGTTCCTTTCCACCGGTGCGTTTGTTCAGCG 350
Db 241 GCTAAGCTTGTCTCTCGACGCGCGGAAGTTCCTTTCCACCGGTGCGTTTGTTCAGCG 300
QY 351 AGAAGCTCTTTCTTCAAGACGCTTTAGCGCGCTTAAAGAGAGAGAAACACATCCCAACAC 410
Db 301 AGAAGCTCTTTCTTCAAGACGCTTTAGCGCGCTTAAAGAGAGAGAAACACATCCCAACAC 360
QY 411 ACCGCGCGCTGAAGCTCGAGCTTAAAGAGATTCGAAGGATTTACGAAGCTCGTTTCGAT 470
Db 361 ACCGCGCGCTGAAGCTCGAGCTTAAAGAGATTCGAAGGATTTACGAAGCTCGTTTCGAT 420
QY 471 TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCTTAAAGCA 530
Db 421 TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCTTAAAGCA 480
QY 531 GTTCTGAATGCGCAGACAGAAATGCTGCCAGCTGGCTTGGCGCGCGGTGGATTTTC 590
Db 481 GTTCTGAATGCGCAGACAGAAATGCTGCCAGCTGGCTTGGCGCGCGGTGGATTTTC 540
QY 591 ATGTTGGAGTCTCTATTTGGCTTTCATCTCAAGATCCCTGAATTAATTAATCTCTCTAT 650
Db 541 ATGTTGGAGTCTCTATTTGGCTTTCATCTCAAGATCCCTGAATTAATTAATCTCTCTAT 600
QY 651 CAGAGGCATTAATGGACGCTGTAGACAAGTTGTTATAGAGACACATTTGTTATATCTC 710
Db 601 CAGAGGCATTAATGGACGCTGTAGACAAGTTGTTATAGAGACACATTTGTTATATCTC 560
QY 711 AAGCTTGCTAATATATGTGTAAGCTTGTATGAAGCTATTGGATAGATGTAAAGAGATT 770
Db 661 AAGCTTGCTAATATATGTGTAAGCTTGTATGAAGCTATTGGATAGATGTAAAGAGATT 720
QY 771 ATTGTCAGTCTAATGTAGATAGTTAGTCTTGAAGCTATTGCGCGGAGAGCTTGT 830
Db 721 ATTGTCAGTCTAATGTAGATAGTTAGTCTTGAAGCTATTGCGCGGAGAGCTTGT 780
QY 831 AAAGAGATAATTGATAGACATAAGAGCTTGGTTTGGAGTACCTAAAGTAAAGAAACAT 890
Db 781 AAAGAGATAATTGATAGACATAAGAGCTTGGTTTGGAGTACCTAAAGTAAAGAAACAT 840
QY 891 GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTG 950
Db 841 GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTG 900
QY 951 AAAGAGGATCACACCAATCTAGATGATGCGTGCTCTTCAATTCGCTGTGCATATTGC 1010
Db 901 AAAGAGGATCACACCAATCTAGATGATGCGTGCTCTTCAATTCGCTGTGCATATTGC 960
QY 1011 AATGTGAAGACCGCAACAGATCTTTTAAACTTGTATCTTGGCGATGTCAACCATAGGAAT 1070
Db 961 AATGTGAAGACCGCAACAGATCTTTTAAACTTGTATCTTGGCGATGTCAACCATAGGAAT 1020
QY 1071 CCGAGGGGATATACGGTGTCTCATGTTGCTGCGATGCGGAGAGGCCAATTTGATACTA 1130
Db 1021 CCGAGGGGATATACGGTGTCTCATGTTGCTGCGATGCGGAGAGGCCAATTTGATACTA 1080
QY 1131 TCTCTATTGGAAGAGGTGCAAGTGATCAGAACCACTTTGGAAGGTAGAACCGCACTC 1190
Db 1081 TCTCTATTGGAAGAGGTGCAAGTGATCAGAACCACTTTGGAAGGTAGAACCGCACTC 1140
QY 1191 ATGATCGCAAAACAGCCACTATGGCGGTTGAATGTAAATATATCCGGAGCAATCGAAG 1250
Db 1141 ATGATCGCAAAACAGCCACTATGGCGGTTGAATGTAAATATATCCGGAGCAATCGAAG 1200

QY 1251 CATTTCTCTCAAAGCGCGACTATGTGTAGAAATACTAGAGCAAGAAGACAAACGAGAACA 1310
Db 1201 CATTTCTCTCAAAGCGCGACTATGTGTAGAAATACTAGAGCAAGAAGACAAACGAGAACA 1260
QY 1311 ATTCTTAGAGATGTTCTCCCTCTTTTGCAGTGGCGCGGATGAATTTGAAGATGACGCTG 1370
Db 1261 ATTCTTAGAGATGTTCTCCCTCTTTTGCAGTGGCGCGGATGAATTTGAAGATGACGCTG 1320
QY 1371 CTCGATCTTGAATAGAGTTGCACCTTGTCTCAACGCTCTTTTCCAAACGGAAGACACAAGCT 1430
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QY 1431 GCAATGGAGATCGCGGAAATGAAGGAAACATGTGAGTTCATAGTACTAGCCTCGAGCCT 1490
Db 1381 GCAATGGAGATCGCGGAAATGAAGGAAACATGTGAGTTCATAGTACTAGCCTCGAGCCT 1440
QY 1491 GACCGTCTCACTGGTACGAAGAGAACATCACCGGCTGTAAAGATAGCACCTTTTCAGAAATC 1550
Db 1441 GACCGTCTCACTGGTACGAAGAGAACATCACCGGCTGTAAAGATAGCACCTTTTCAGAAATC 1500
QY 1551 CTAGAAGAGCATCAAGTAGACTTAAAGCGCTTTCTAAACCGTGGAACTCGGGAAACGA 1610
Db 1501 CTAGAAGAGCATCAAGTAGACTTAAAGCGCTTTCTAAACCGTGGAACTCGGGAAACGA 1560
QY 1611 TTCTTCCCGCGCTGTTGCGCAGTGTCTGACACAGATTAATGAACCTGT 1655
Db 1561 TTCTTCCCGCGCTGTTGCGCAGTGTCTGACACAGATTAATGAACCTGT 1605

RESULT 13

AAV43663
ID AAV43663 standard; cDNA; 1608 BP.

XX AC AAV43663;

XX DX 29-SEP-1998 (first entry)

XX DE Non-inducible immunity-1 (NIM1) protein variant 3 encoding cDNA.

XX KW Non-inducible immunity-1 gene; NIM1 gene; disease resistance; mutant;

XX KW transgenic plant; SAR; systemic acquired resistance; CIM; pathogen;

XX KW constitutive immunity; agriculture; variant; ss.

XX OS Arabidopsis thaliana.

XX OS Synthetic.

XX FH Key Location/Qualifiers

XX FT CDS 43..1608

XX FT /*tag= a

XX FT /product= "NIM1 protein variant 3"

XX FT /note= "C-terminal deletion compared to wild-type

XX FT NIM1 sequence"

XX PN W09826082-A1.

XX PD 18-JUN-1998.

XX PF 12-DEC-1997; 97WO-EP07012.

XX PR 20-JUN-1997; 97US-0880179.

XX PR 13-DEC-1996; 96US-0033177.

XX PR 27-DEC-1996; 96US-0034379.

XX PR 27-DEC-1996; 96US-0034382.

XX PR 10-JAN-1997; 97US-0034730.

XX PR 10-JAN-1997; 97US-0035021.

XX PR 10-JAN-1997; 97US-0035022.

XX PA (NOVS) NOVARTIS AG.

XX PI Friedrich LB, Hunt MD, Lawton KA, Ryals JA, Steiner HY;

XX PI Uknes SJ;

XX WI WPI; 1998-348536/30.

DR P-PSDB; AAW61985.
XX use of non-inducible immunity-1 gene - for transforming plants to
PT produce transgenic plants having a broad spectrum disease resistance
XX
XX
PS Claim 12; Pages 155-159; 205pp; English.
XX
CC This cDNA encodes an altered form of the Arabidopsis thaliana non-
CC inducible immunity-1 (NIM1) protein. Sequences shown in AAW43661 to
CC AAW43665 represent variants of the NIM1 cDNA. The invention provides a
CC chimeric gene comprising a promoter active in plants operatively linked
CC to a DNA molecule that encodes an altered form of the NIM1 protein. Plant
CC cells stably transformed with a recombinant vector comprising such a
CC chimeric gene have a broad spectrum of disease resistance. The altered
CC NIM1 proteins act as dominant-negative regulators of the systemic
CC acquired resistance (SAR) signal transduction pathway. The transgenic
CC plants transformed with an altered NIM1 gene exhibits constitutive SAR
CC expression which is higher in the transformed plants than in a wild-type
CC plant. The products can be used for producing plants with a broad
CC spectrum disease resistance. Overexpression of NIM1 mimics the effects
CC of inducer compounds that induce constitutive immunity (CIM) phenotype
CC in plants. The inventions can be used with plants such as rice, wheat,
CC barley, rye, corn, potato, carrot, sweet potato, sugar beet, bean, pea,
CC chichory, lettuce, cabbage, cauliflower, broccoli, turnip, radish,
CC spinach, asparagus, onion, garlic, eggplant, pepper, celery, carrot,
CC squash, pumpkin, zucchini, cucumber, apple, pear, quince, melon, plum,
CC cherry, peach, nectarine, apricot, strawberry, grape, raspberry, tobacco,
CC blackberry, pineapple, avocado, papaya, mango, banana, soybean, tobacco,
CC tomato, sorghum and sugarcane. The plants produced are resistant to
CC plant pathogens such as viruses, viroids, fungi, bacteria, insects such
CC as aphids and lepidoptera and nematodes. The plants produced can be used
CC in agriculture.
XX
SQ Sequence 1608 BP; 447 A; 340 C; 385 G; 436 T; 0 other;

Query Match 76.3%; Score 1605; DB 19; Length 1608;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1605; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 51 GATCTCTTAATTCGTAATTCATTCATCGGACCTGTTGATGGACACCCATTCAT 110
DB 1 GATCTCTTAATTCGTAATTCATTCATCGGACCTGTTGATGGACACCCATTCAT 60
QY 111 GGATTCGCCGATTCCTATGAATCAGCAGCACTAGTTTCGTCGCTACCGATAACACCGAC 170
DB 61 GGATTCGCCGATTCCTATGAATCAGCAGCACTAGTTTCGTCGCTACCGATAACACCGAC 120
QY 171 TCCTCTATTGTTTATCTGCGCCGCGAACAAGTACTCAGCGACCTGATGTCGTCGTCG 230
DB 121 TCCTCTATTGTTTATCTGCGCCGCGAACAAGTACTCAGCGACCTGATGTCGTCGTCG 180
QY 231 CAATTGCTCTCAACAGCTTCGAATCCGCTTTGACTCGCGGATGATTTCTACAGCGAC 290
DB 181 CAATTGCTCTCAACAGCTTCGAATCCGCTTTGACTCGCGGATGATTTCTACAGCGAC 240
QY 291 GCTAAGCTGTTCTCTCCGACGCGCGGAAGTTCTTTCCACCGGTGCGTTTGTCTACGCG 350
DB 241 GCTAAGCTGTTCTCTCCGACGCGCGGAAGTTCTTTCCACCGGTGCGTTTGTCTACGCG 300
QY 351 AGAAGCTCTTTCTCAAGACGCTTTAGCCGCGCTTAAGAAGGAGAAAGACTCCCAACAAC 410
DB 301 AGAAGCTCTTTCTCAAGACGCTTTAGCCGCGCTTAAGAAGGAGAAAGACTCCCAACAAC 360
QY 411 ACCGCCGCGTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGAT 470
DB 361 ACCGCCGCGTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGAT 420
QY 471 TCGGTTGTACATGTTTGGCTTATGTTTACAGCAGCAGTGAGACCGCCGCTTAAGGA 530
DB 421 TCGGTTGTACATGTTTGGCTTATGTTTACAGCAGCAGTGAGACCGCCGCTTAAGGA 480
QY 531 GTTCTCGAATGCCAGACGAGAATTCGTCACCGTGGCTTCGCCGCGCGGCGGTGATTC 590
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DB 481 GTTCTCTGAATGCCAGACGAGAAATGCTGCCACGTGGCTTCCCGCGCGGGTGAFTTC 540
QY 591 ATGTTGGAGGTTCTCTATTTCGCTTTCATCTTCAAGATCCCTGAATTAATTAATCTCTAT 650
DB 541 ATGTTGGAGGTTCTCTATTTCGCTTTCATCTTCAAGATCCCTGAATTAATTAATCTCTAT 600
QY 651 CAGAGGCACTTATTTGGACGTTGTAGACAAAGTTGTATAGAGGACACATTTGGTTTACTC 710
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QY 771 ATTGCAAGTCTAATTTAGATATGTTTGTAGTCTTTGAAAGTCAATTCGCGGAGAGACTTGT 830
DB 721 ATTGCAAGTCTAATTTAGATATGTTTGTAGTCTTTGAAAGTCAATTCGCGGAGAGACTTGT 780
QY 831 AAGAGATAATTTAGATAGACGTTAAGAGCTTGGTTTGGAGGTACCTAAAGTAAAGAACAT 890
DB 781 AAGAGATAATTTAGATAGACGTTAAGAGCTTGGTTTGGAGGTACCTAAAGTAAAGAACAT 840
QY 891 GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTTAGTCAAGTTGCTTTTGG 950
DB 841 GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTTAGTCAAGTTGCTTTTGG 900
QY 951 AAGAGGATCACACCAATCTAGATGATCGTGTCCTTTCATTTTCGCTGTTTGCATATTCG 1010
DB 901 AAGAGGATCACACCAATCTAGATGATCGTGTCCTTTCATTTTCGCTGTTTGCATATTCG 960
QY 1011 AATGTGAAGACCGCAACAGATCTTTTAAACCTTGATCTTTCGCGATGTCAACCATAGGAAT 1070
DB 961 AATGTGAAGACCGCAACAGATCTTTTAAACCTTGATCTTTCGCGATGTCAACCATAGGAAT 1020
QY 1071 CCGAGGGGATATACGGTCTTCATCTTCTGCTGCGATGCGGAAGAGGCCACAAATGATACTA 1130
DB 1021 CCGAGGGGATATACGGTCTTCATCTTCTGCTGCGATGCGGAAGAGGCCACAAATGATACTA 1080
QY 1131 TCTCTATTGGAAAAAGGTGCAAGTGCATCAGAAGCACTTTTGGAGGTAGAACCGCACTC 1190
DB 1081 TCTCTATTGGAAAAAGGTGCAAGTGCATCAGAAGCACTTTTGGAGGTAGAACCGCACTC 1140
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DB 1141 ATGATCGCAAAAACAGCCACTATGCGGTTTGAATGTAATATATATCCCGGAGCAATGCAAG 1200
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DB 1201 CATTTCTCTCAAGGCGGACTATGCTAGAAATCTAGAGCAAGAGACAAACAGAGACAA 1260
QY 1311 ATTCCTTAGAGATGTTCCCTCCCTCTTTTTCAGTGGCGGCGGATGAATTTGAAGATGACGCTG 1370
DB 1261 ATTCCTTAGAGATGTTCCCTCCCTCTTTTTCAGTGGCGGCGGATGAATTTGAAGATGACGCTG 1320
QY 1371 CTCGATCTTTGAAATTAGAGTTGCACTTTCCTCAAGCTCTTTTTCACGGAAGACACAGCT 1430
DB 1321 CTCGATCTTTGAAATTAGAGTTGCACTTTCCTCAAGCTCTTTTTCACGGAAGACACAGCT 1380
QY 1431 GCAATGGAGATCGCGGAAATGAAGGAAACATGCTGAGTTTCATAGTACGCTCGAGGCT 1490
DB 1381 GCAATGGAGATCGCGGAAATGAAGGAAACATGCTGAGTTTCATAGTACGCTCGAGGCT 1440
QY 1491 GACCGTCTCAGTGGTACGAGAGACATCACCAGGTGTAAAGATAGACACCTTTTCAGATC 1550
DB 1441 GACCGTCTCAGTGGTACGAGAGACATCACCAGGTGTAAAGATAGACACCTTTTCAGATC 1500
QY 1551 CTAGAAGACATCAAGTAGACTAAAAGCGCTTTCTTAAACCGTGAAGTCTCGGAAACGA 1610
DB 1501 CTAGAAGACATCAAGTAGACTAAAAGCGCTTTCTTAAACCGTGAAGTCTCGGAAACGA 1560
QY 1611 TTCTTCCCGCGCTGTTTCGGCAGTGTCTGACACGATTTATGAAGT 1655
DB 1561 TTCTTCCCGCGCTGTTTCGGCAGTGTCTGACACGATTTATGAAGT 1605
|||||


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RESULT 14
AAV46276 standard; cDNA; 1597 BP.
XX
AC AAV46276;
XX
DT 16-OCT-1998 (first entry)
XX
DE A. thaliana N-terminal truncated NIM-1 variant cDNA #1.
XX
KW NIM-1; noninducible immunity; systemic acquired resistance; SAR;
KW pathogen; disease; protection; immunomodulated; plant; cereal; fruit;
KW vegetable; virus; fungi; bacteria; insect; nematode; microbicide; ss.
XX
OS Arabidopsis thaliana.
XX
FH key Location/Qualifiers
FT CDS 1..1410
FT FT /*tag= a
FT FT /product= NIM-1
FT FT /note= "variant"
XX
PN WO9829537-A2.
XX
PD 09-JUL-1998.
XX
PF 23-DEC-1997; 97WO-EP07253.
XX
PR 10-JAN-1997; 97US-0035024.
PR 27-DEC-1996; 96US-0034378.
XX
PA (NOVS ) NOVARTIS AG.
XX
PI Friedrich LB, Molina Fernandez A, Ryals JA, Uknes SJ;
XX
DR WPI; 1998-388119/33.
DR P-PSDB; W6447.
XX
PT Protection of immunomodulated plants against pathogens - comprises
PT applying microbicide to provide increase in resistance
XX
PS Claim 14; Page 123-127; 164pp; English.
XX
CC This sequence encodes a truncated variant NIM-1 protein from Arabidopsis
CC thaliana. This protein is used in a method resulting in the protection of
CC an immunomodulated plant having a first level of resistance and involves
CC treatment with at least 1 microbicide that confers a second level of
CC resistance, such that the plants have a third level of resistance greater
CC than the sum of the first two levels. The method can be applied to a wide
CC variety of plants (cereals, fruits, oilseeds, vegetables etc.) to protect
CC against viruses, fungi, bacteria, insects and nematodes. The method
CC provides a high level of resistance and allows a reduction in the amount
CC of microbicide used. Since the process involves two different methods of
CC protection, it is unlikely that the pathogen will develop resistance to
CC the treatment.
XX
SQ Sequence 1597 BP; 467 A; 304 C; 391 G; 445 T; 0 other;
Query Match 75.7%; Score 1592.8; DB 19; Length 1597;
Best Local Similarity 99.9%; Pred. No. 0;
Matches 1594; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
QY 466 TCGATTCCGGTTGACTGTTGGCTTATGTTACAGCAGCAGAGTGAGACCGCGCCTA 525
DB 2 TGGATTCCGGTTGACTGTTGGCTTATGTTACAGCAGCAGAGTGAGACCGCGCCTA 61
QY 526 AAGGAGTTTCTGAATCCGACAGAGAAATGCTGCCACGTGGCTTGGCGCGCGGGTGG 585
DB 62 AAGGAGTTTCTGAATCCGACAGAGAAATGCTGCCACGTGGCTTGGCGCGCGGGTGG 121
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QY 586 ATTTTCATGTTGGAGGTTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATCTC 645
DB 122 ATTTTCATGTTGGAGGTTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATCTC 181
QY 646 TCTATCAGAGGCACATTATTTGGACGTTGTAGACAAAGTTGTTATAGAGCACACATTGGTTA 705
DB 182 TCTATCAGAGGCACATTATTTGGACGTTGTAGACAAAGTTGTTATAGAGCACACATTGGTTA 241
QY 706 TACTCAAGCTTCTAATATATGTTGTAAGCTTGTATGAAGCTATTGGATAGATGTAAG 765
DB 242 TACTCAAGCTTCTAATATATGTTGTAAGCTTGTATGAAGCTATTGGATAGATGTAAG 301
QY 766 AGATTATTTCTCAAGTCTAATGTAGATATGTTAGTCTTGAAGAAGTCATTGCCGGAAGAC 825
DB 302 AGATTATTTCTCAAGTCTAATGTAGATATGTTAGTCTTGAAGAAGTCATTGCCGGAAGAC 361
QY 826 TTGTTAAAGAGATAATTGATAGACGTTAAAGAGCTTGGTTTGGAGGTACCTAAAGTAAAGA 885
DB 362 TTGTTAAAGAGATAATTGATAGACGTTAAAGAGCTTGGTTTGGAGGTACCTAAAGTAAAGA 421
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DB 422 AACATGCTCGAATGTACATAAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGC 481
QY 946 TTTTGAAGAGGATCACACCAATCTAGATGATGCGTGTCTTCTCATTTTCGCTGTTCAT 1005
DB 482 TTTTGAAGAGGATCACACCAATCTAGATGATGCGTGTCTTCTCATTTTCGCTGTTCAT 541
QY 1006 ATTTGCAATGTGAAGACCGCAACAGATCTTTTAAACTTTCATCTTGGCGATGCAACCAT 1065
DB 542 ATTTGCAATGTGAAGACCGCAACAGATCTTTTAAACTTTCATCTTGGCGATGCAACCAT 601
QY 1066 GGAATCCGAGGGGATATACGGTCTTTCATGTTGCTCCGATGCGGAAGAGGCACAAATTGA 1125
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RESULT 15
AAV43662
ID AAV43662 standard; cDNA; 1597 BP.
AC AAV43662;
XX 29-SEP-1998 (first entry)
XX Non-inducible immunity-1 (NIM1) protein variant 2 encoding cDNA.
KW Non-inducible immunity-1 gene; NIM1 protein; disease resistance; mutant;
KW transgenic plant; SAR; systemic acquired resistance; CIM; pathogen;
KW constitutive immunity; agriculture; variant; ss.

OS Arabidopsis thaliana.
XX Synthetic.
FH Key Location/Qualifiers
FT CDS 1..1410
FT /*tag= a
FT /product= "NIM1 protein variant 2"
FT /note= "N-terminal deletion compared to wild-type
NIM1 sequence"

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XX 18-JUN-1998.
XX 12-DEC-1997; 97WO-EP07012.
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PR 13-DEC-1996; 96US-0033177.
PR 27-DEC-1996; 96US-0034379.
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PR 10-JAN-1997; 97US-0034730.
PR 10-JAN-1997; 97US-0035021.
PR 10-JAN-1997; 97US-0035022.
XX (NOVS) NOVARTIS AG.
XX Friedrich LB, Hunt MD, Lawton KA, Ryals JA, Steiner HY;
PI Uknes SJ;
XX WPI; 1998-348536/30.
DR P-PSDB; AAW61984.

XX Use of non-inducible immunity-1 gene - for transforming plants to
PT produce transgenic plants having a broad spectrum disease resistance
XX Claim 9; Pages 149-152; 205pp; English.
XX This cDNA encodes an altered form of the Arabidopsis thaliana non-
CC inducible immunity-1 (NIM1) protein. Sequences shown in AAV43661 to
CC AAV43665 represent variants of the NIM1 cDNA. The invention provides a
CC chimeric gene comprising a promoter active in plants operatively linked
CC to a DNA molecule that encodes an altered form of the NIM1 protein. Plant
CC cells stably transformed with a recombinant vector comprising such a
CC chimeric gene have a broad spectrum of disease resistance. The altered
CC NIM1 proteins act as dominant-negative regulators of the systemic
CC acquired resistance (SAR) signal transduction pathway. The transgenic
CC plants transformed with an altered NIM1 gene exhibits constitutive SAR
CC expression which is higher in the transformed plants than in a wild-type
CC plant. The products can be used for producing plants with a broad
CC spectrum disease resistance. Overexpression of NIM1 mimics the effects
CC of inducer compounds that induce constitutive immunity (CIM) phenotype
CC in plants. The inventions can be used with plants such as rice, wheat,
CC barley, rye, corn, potato, carrot, sweet potato, sugar beet, bean, pea,
CC chichory, lettuce, cabbage, cauliflower, broccoli, turnip, radish,
CC spinach, asparagus, onion, garlic, eggplant, pepper, celery, carrot,
CC squash, pumpkin, zucchini, cucumber, apple, pear, quince, melon, plum,
CC cherry, peach, nectarine, apricot, strawberry, grape, raspberry,
CC blackberry, pineapple, avocado, papaya, mango, banana, soybean, tobacco,
CC tomato, sorghum and sugarcane. The plants produced are resistant to
CC plant pathogens such as viruses, viroids, fungi, bacteria, insects such
CC as aphids and lepidoptera and nematodes. The plants produced can be used
CC in agriculture.
XX

SQ Sequence 1597 BP; 467 A; 304 C; 381 G; 445 T; 0 other;
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Best Local Similarity 99.9%; Pred. No. 0;
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GenCore version 5.1.3
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OM nucleic - nucleic search, using sw model

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Searched: 383533 seqs, 122816752 residues
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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ALIGNMENTS

RESULT 1
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; Sequence 6, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE N1M1 GENE CONFERRING
; TITLE OF INVENTION: DISEASE RESISTANCE IN PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/989,478
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/033,177
; FILING DATE: 13-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
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; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: PF/5-21214/PI/CGC1911

TELECOMMUNICATION INFORMATION:

TELEPHONE: (919) 541-8587

TELEFAX: (919) 541-8689

INFORMATION FOR SEQ ID NO: 6:

SEQUENCE CHARACTERISTICS:

LENGTH: 2011 base pairs

TYPE: nucleic acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: cDNA

ORIGINAL SOURCE:

ORGANISM: Arabidopsis thaliana

FEATURE:

NAME/KEY: misc_feature

LOCATION: 1..2011

OTHER INFORMATION: /note= "NIM1 cDNA sequence"

NAME/KEY: CDS

LOCATION: 43..1824

OTHER INFORMATION: /product= "NIM1 protein"

US-08-989-478-6

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QY 1911 ATAATCTGTTTTCATGATGACTGTAACGTGTTATGCTCTATCGTTGGCGTCATATAGTTT 1970
Db 1861 ATAATCTGTTTTCATGATGACTGTAACGTGTTATGCTCTATCGTTGGCGTCATATAGTTT 1920
QY 1971 CGCTCTCTGTTTTCATGCTCTGTTGATTAATTCGTCGAGGTGCTTCAACAAATGTTGTA 2030
Db 1921 CGCTCTCTGTTTTCATGCTCTGTTGATTAATTCGTCGAGGTGCTTCAACAAATGTTGTA 1980
QY 2031 ACAATTTGAACCAATGGTATACAGATTGTA 2051
Db 1981 ACAATTTGAACCAATGGTATACAGATTGTA 2011

RESULT 2
US-08-996-685-6
; Sequence 6, Application US/08996685
; Patent No. 6031153
; GENERAL INFORMATION:
; APPLICANT: Rvals, John
; APPLICANT: Friedrich, Leslie
; APPLICANT: Uknes, Scott
; APPLICANT: Molina, Antonio
; APPLICANT: Ruess, Wilhelm
; APPLICANT: Knauf-Beiter, Gertrude
; APPLICANT: Kung, Ruth
; APPLICANT: Kessmann, Helmut
; APPLICANT: Oostendorp, Michael
; TITLE OF INVENTION: METHOD FOR PROTECTING PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 6031153artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 6031153th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/996,685
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/761,543
; FILING DATE: 6-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,378
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,024
; FILING DATE: 10-JAN-1997

; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/875,015
; FILING DATE: 16-JUL-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: PF/5-21215/PI/CGC1912
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (919) 541-8587
; TELEFAX: (919) 541-8689
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 2011 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: cDNA
; ORIGINAL SOURCE:
; ORGANISM: Arabidopsis thaliana
; FEATURE:
; NAME/KEY: misc_feature
; LOCATION: 1..2011
; OTHER INFORMATION: /note= "NIM1 cDNA sequence"
; FEATURE:
; NAME/KEY: CDS
; LOCATION: 43..1824
; OTHER INFORMATION: /product= "NIM1 protein"
; US-08-996-685-6

Query Match 95.5%; Score 2009.4; DB 3; Length 2011;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 2010; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
QY 51 GATCTCTTTAAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCACTTGTAT 110
Db 1 GATCTCTTTAAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCACTTGTAT 60
QY 111 GGATTCGCCGATTCCTTATGAATCAGCAGACTAGTTTCGTCGCTACCGATACACCGAC 170
Db 61 GGATTCGCCGATTCCTTATGAATCAGCAGACTAGTTTCGTCGCTACCGATACACCGAC 120
QY 171 TCCTCTATTGTTTATCTGGCCGCCGAACAAAGTACTACCGGACCTGATGTATCTGCTCTG 230
Db 121 TCCTCTATTGTTTATCTGGCCGCCGAACAAAGTACTACCGGACCTGATGTATCTGCTCTG 180
QY 231 CAATTGCTCTCCAACAGCTTCGAATCCGCTTTTGACTCGCCGGATGATTTCTACAGCGAC 290
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Db 301 AGAAGCTCTTTCTTCAAGAGCGCTTTAGCCGCCGCTTAAGAAGAGAAAGACTCCCAACAC 360
QY 411 ACCGCGCGGTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGAT 470
Db 361 ACCGCGCGGTGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGAT 420
QY 471 TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTACAGCCGCCCTTAAAGGA 530
Db 421 TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTACAGCCGCCCTTAAAGGA 480
QY 531 GTTTCCTGAATGCGCAGACGAGAATTCGTCGACAGTGGCTTCGCCGCCGCGGTGGATTTC 590
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Db 541 ATGTTGGAGGTTCTCTATTGGCTTTCATTTCAAGATCCCTGATTAATTAATCTCTAT 600

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DB 601 CAGAGGCACTTATTGGAGCGTTGTAGACAAAGTTGTTATAGAGGACACATTGGTTATATCT 660
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DB 661 AAGCTTGCTAATATATATGTGTTAAAGCTTGTTAAGAGCTTATGAGATAGATGTAAAGAGATT 720
QY 771 ATGTCAAGTCTAATATAGATATAGTGTAGTCTTGAAAGTCAATTCGCGGAAGAGCTTGT 830
DB 721 ATGTCAAGTCTAATATAGATATAGTGTAGTCTTGAAAGTCAATTCGCGGAAGAGCTTGT 780
QY 831 AAAGAGATAATGTATAGACGTAAAGAGCTTGTTGGAGGTACCTAAAGTAAAGAAACAT 890
DB 781 AAAGAGATAATGTATAGACGTAAAGAGCTTGTTGGAGGTACCTAAAGTAAAGAAACAT 840
QY 891 GTCTCGAATGTACATAAAGGCACTTGACCTCGGATGATATGTAGTCAAGTGTCTTTTG 950
DB 841 GTCTCGAATGTACATAAAGGCACTTGACCTCGGATGATATGTAGTCAAGTGTCTTTTG 900
QY 951 AAAGAGGATCACACCAATCTAGATGATGCGTGTCTTCAATTCGCTGTTCGATATGTC 1010
DB 901 AAAGAGGATCACACCAATCTAGATGATGCGTGTCTTCAATTCGCTGTTCGATATGTC 960
QY 1011 AATGTGAAGCGCAACAGATCTTTTAAACTTTGATCTTGCAGTGTCAACCATAGGAAT 1070
DB 961 AATGTGAAGCGCAACAGATCTTTTAAACTTTGATCTTGCAGTGTCAACCATAGGAAT 1020
QY 1071 CCGAGGGATATACGGTCTTCATCTTCTGCGATGCGGAAGGAGCCACAATGTATCTA 1130
DB 1021 CCGAGGGATATACGGTCTTCATCTTCTGCGATGCGGAAGGAGCCACAATGTATCTA 1080
QY 1131 TCTCTATTTGGAAGAGTGCATGCAATGCAATGCAATGCAATGCAATGCAATGCAATGCA 1190
DB 1081 TCTCTATTTGGAAGAGTGCATGCAATGCAATGCAATGCAATGCAATGCAATGCAATGCA 1140
QY 1191 ATGATCGCAAAACAGCCACTATGCGGTGTAATTAATTAATTAATTAATTAATTAATTAAT 1250
DB 1141 ATGATCGCAAAACAGCCACTATGCGGTGTAATTAATTAATTAATTAATTAATTAATTAAT 1200
QY 1251 CATCTCTCAAGGCGGACTATGTAGTAATTAATTAATTAATTAATTAATTAATTAATTAAT 1310
DB 1201 CATCTCTCAAGGCGGACTATGTAGTAATTAATTAATTAATTAATTAATTAATTAATTAAT 1260
QY 1311 ATTCCTAGAGATGTTCTCCCTCTTTTGCAGTGGCGGCGATGAATTTGAAGATGACGCTG 1370
DB 1261 ATTCCTAGAGATGTTCTCCCTCTTTTGCAGTGGCGGCGATGAATTTGAAGATGACGCTG 1320
QY 1371 CTCGATCTTGAATAAGATGCTGCTCAACGCTTTTTCACGGAAGCAAGCT 1430
DB 1321 CTCGATCTTGAATAAGATGCTGCTCAACGCTTTTTCACGGAAGCAAGCT 1380
QY 1431 GCAATGGAGATGCCGAATGAAGGAACATCTGAGTTCATAGTACTAGCTCGAGCT 1490
DB 1381 GCAATGGAGATGCCGAATGAAGGAACATCTGAGTTCATAGTACTAGCTCGAGCT 1440
QY 1491 GACCGTCTCACTGTTACGGAAGAAACATCACCGGCTGTTAAAGATAGCAGCTTTTCAAGATC 1550
DB 1441 GACCGTCTCACTGTTACGGAAGAAACATCACCGGCTGTTAAAGATAGCAGCTTTTCAAGATC 1500
QY 1551 CTAGAAGAGATCAAGTATAGACTAAAGCGCTTTTAAACCGTGAAGTCCGGGAACGA 1610
DB 1501 CTAGAAGAGATCAAGTATAGACTAAAGCGCTTTTAAACCGTGAAGTCCGGGAACGA 1560
QY 1611 TTCTTCCGCGCTGTTCCGAGTGTCTGACGATGATTAAGTGTGAGGACTTGACTCAA 1670
DB 1561 TTCTTCCGCGCTGTTCCGAGTGTCTGACGATGATTAAGTGTGAGGACTTGACTCAA 1620
QY 1671 CTGGCTTGGGAGAGACGACACTGCTGAGAACGACTACAAAAGAGCAAAAGGTACATG 1730
DB 1621 CTGGCTTGGGAGAGACGACACTGCTGAGAACGACTACAAAAGAGCAAAAGGTACATG 1680
QY 1731 GAAATACAGAGACACTAAAGAGGCGCTTTAGTGAGGACAAATTTGGAATTAGAATTCG 1790

DB 1681 GAATACAGAGACACTAAAGAGGCGCTTTAGTGAGGACAAATTTGGAATTAGGAAATTTG 1740
QY 1791 TCCTTGACAGATTCGACTTCTTCCACATCGAATCAACCGGTGGAAGAGGCTTAACCGT 1850
DB 1741 TCCTTGACAGATTCGACTTCTTCCACATCGAATCAACCGGTGGAAGAGGCTTAACCGT 1800
QY 1851 AAACCTCTCATCGTCTGCGTGAGACTCTTGCCTCTTAGTGTAAATTTTGTCTGACCAT 1910
DB 1801 AAACCTCTCATCGTCTGCGTGAGACTCTTGCCTCTTAGTGTAAATTTTGTCTGACCAT 1860
QY 1911 ATAATCTGTTTTCATGATGACTGTAACCTGTTTATGCTATCGTTGGCGCTCATATAGTTT 1970
DB 1861 ATAATCTGTTTTCATGATGACTGTAACCTGTTTATGCTATCGTTGGCGCTCATATAGTTT 1920
QY 1971 CGCTCTGCTTTTGCATCTGCTGATTAATGCTGCAAGGTGCTTCAACAAATGTTGTA 2030
DB 1921 CGCTCTGCTTTTGCATCTGCTGATTAATGCTGCAAGGTGCTTCAACAAATGTTGTA 1980
QY 2031 ACAATTTGAACCAATGATATACAGATTTGTA 2061
DB 1981 ACAATTTGAACCAATGATATACAGATTTGTA 2011

RESULT 3
US-08-989-478-7
; Sequence 7, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING
; TITLE OF INVENTION: DISEASE RESISTANCE IN PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/989,478
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/033,177
; FILING DATE: 13-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241

REFERENCE/DOCKET NUMBER: PF/5-21214/PI/CGC1911

TELECOMMUNICATION INFORMATION:

TELEPHONE: (919) 541-8587

TELEFAX: (919) 541-8689

INFORMATION FOR SEQ ID NO: 7:

SEQUENCE CHARACTERISTICS:

LENGTH: 2011 base pairs

TYPE: nucleic acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: cDNA

FEATURE:

NAME/KEY: CDS

LOCATION: 43..1824

OTHER INFORMATION: /product= "altered form of NIM1"

OTHER INFORMATION: /note= "Serine residues at amino acid positions 55 and 59 in

OTHER INFORMATION: wild-type NIM1 gene product have been changed to Alanine

OTHER INFORMATION: residues."

FEATURE:

NAME/KEY: misc_feature

LOCATION: 205..217

OTHER INFORMATION: /note= "nucleotides 205 and 217

OTHER INFORMATION: changed from T's to G's compared to wild-type sequence."

US-08-989-478-7

Query Match 95.4%; Score 2006.2; DB 2; Length 2011;

Best Local Similarity 99.9%; Pred. No. 0;

Matches 2008; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 51 GATCTCTTAATTTGTGAATTCATCGGAACCTGTTGATGACACACCACTTGAT 110

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QY 111 GGATTCGCCGATTCCTATGAATCAGCAGCACTAGTTTCGTCGCTACCGAATAACACCGAC 170

DB 61 GGATTCGCCGATTCCTATGAATCAGCAGCACTAGTTTCGTCGCTACCGAATAACACCGAC 120

QY 171 TCCCTATTGTTTATCTGGCGCGGCAAGTACTACCGGACCTGATGTCGCTCTG 230

DB 121 TCCCTATTGTTTATCTGGCGCGGCAAGTACTACCGGACCTGATGTCGCTCTG 180

QY 231 CAATTGCTCTCAACAGCTTGAATCGCTCTTTGACTCGCCGGATGTTTCTACACGAC 290

DB 181 CAATTGCTCTCAACAGCTTGAATCGCTCTTTGACTCGCCGGATGTTTCTACACGAC 240

QY 291 GCTAAGCTTGTTCTCCGACGCGCGGAAGTTCTTTCCACCGTCCGTTTGTACGG 350

DB 241 GCTAAGCTTGTTCTCCGACGCGCGGAAGTTCTTTCCACCGTCCGTTTGTACGG 300

QY 351 AGAAGCTCTTTCTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAAGACTCCAACAAC 410

DB 301 AGAAGCTCTTTCTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAAGACTCCAACAAC 360

QY 411 ACCGCGCGCTGAAGCTCGAGCTTAAGAGATGCGCAAGGATTACGAAGTCGGTTTCGAT 470

DB 361 ACCGCGCGCTGAAGCTCGAGCTTAAGAGATGCGCAAGGATTACGAAGTCGGTTTCGAT 420

QY 471 TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCTTAAGGA 530

DB 421 TCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCTTAAGGA 480

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DB 481 GTTTCGTAATCGGACGAGAGATTGTCGACGTCGTCGCGCGCGGCGGTTTCGAT 540

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DB 541 ATGTTGAGGTTCTCTATTGGCTTTTCATCTTCAAGATCCCTGAATTAATTAATCTCTAT 600

QY 651 CAGAGGCACTTATGGAGCTTTGAGACAAAGTTGTTATAGAGGACACATTTGGTTATCTC 710

DB 601 CAGAGGCACTTATGGAGCTTTGAGACAAAGTTGTTATAGAGGACACATTTGGTTATCTC 660

QY 711 AAGCTTGCTAATATATGTTGTTAAAGCTTGTATGAAGCTATTGATAGATGATAAGAGATT 770

DB 661 AAGCTTGCTAATATATGTTGTTAAAGCTTGTATGAAGCTATTGATAGATGATAAGAGATT 720

QY 771 ATTGTCAAGCTTAATGTAGATATGTTAGTCTTGAAGTCATTGCGGGAAGAGCTTTGTT 830

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QY 891 GTCTCGAATGPACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTG 950

DB 841 GTCTCGAATGPACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTG 900

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DB 901 AAAGAGGATCACCAATCTAGATGATGCGTCTCTTCATTTCCGCTGTTGATATTCG 960

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QY 1191 ATGATCGCAAAACAAAGCCACTATGCGCGTTGAATGTAAATATATCCGCGAGCAATCGAAG 1250

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QY 1431 GCAATGGAGATCGCGAAATGAAGGAAACATGTGAGTTTCATAGTCTAGCCTCGAGCCT 1490

DB 1381 GCAATGGAGATCGCGAAATGAAGGAAACATGTGAGTTTCATAGTCTAGCCTCGAGCCT 1440

QY 1491 GACGCTCTCACTGTACGAGAGAACATCACCGGCTTAAAGATAGCACCCTTTCAGAAATC 1550

DB 1441 GACGCTCTCACTGTACGAGAGAACATCACCGGCTTAAAGATAGCACCCTTTCAGAAATC 1500

QY 1551 CTAGAAGAGCATCAAAAGTAGACTAAAAGCGCTTTCTAAAAACCGTGGAACTCGGGAACGA 1610

DB 1501 CTAGAAGAGCATCAAAAGTAGACTAAAAGCGCTTTCTAAAAACCGTGGAACTCGGGAACGA 1560

QY 1611 TTCTTCCCGCCTGTTGCGCAGTCTCGACAGATTATGAATGTAGGAGCTTGTACTCAA 1670

DB 1561 TTCTTCCCGCCTGTTGCGCAGTCTCGACAGATTATGAATGTAGGAGCTTGTACTCAA 1620

QY 1671 CTGGCTTCGGGAGAGACGACACTGCTGAGAAACGACTACAAAAGAGCAAGGATCATG 1730

DB 1621 CTGGCTTCGGGAGAGACGACACTGCTGAGAAACGACTACAAAAGAGCAAGGATCATG 1680

QY 1731 GAAATACAGAGACACTAAAGAGCGCTTTAGTGAGGACAAATTTGGAATTAGGAAATTCG 1790

DB 1681 GAAATACAGAGACACTAAAGAGCGCTTTAGTGAGGACAAATTTGGAATTAGGAAATTCG 1740

QY 1791 TCCCTGACAGATTCGACTTCTTCCACATCGAAATCAACCCGCTGGAAGAGGCTCTAACCGT 1850

QY 591 ATGTTGGAGGTTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTAATCTCTCTAT 650
DB 541 ATGTTGGAGGTTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTAATCTCTCTAT 500
QY 651 CAGAGGCATTTATTTGGAGGTTGTAGACAAAGTTGTTATAGAGGACACATTTGGTTATPACFC 710
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QY 711 AAGCTTTCATATATATGTTGTAAGCTTTGATGAAGCTATTGATAGATGTAAGAGATT 770
DB 661 AAGCTTTCATATATATGTTGTAAGCTTTGATGAAGCTATTGATAGATGTAAGAGATT 720
QY 771 ATTGTCAGTCTAATAGTAGATATGTTAGTCTTTGAAAAGTCATTTGCCGGAAGAGCTTTGTT 830
DB 721 ATTGTCAGTCTAATAGTAGATATGTTAGTCTTTGAAAAGTCATTTGCCGGAAGAGCTTTGTT 780
QY 831 AAAGAGATTAATGATAGACGTAAGAGCTTTGGTTCGAGGTACCTAAAGTAAGAAACAT 890
DB 781 AAAGAGATTAATGATAGACGTAAGAGCTTTGGTTCGAGGTACCTAAAGTAAGAAACAT 840
QY 891 GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTTC 950
DB 841 GTCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTTC 900
QY 951 AAAGAGGATCACCAATCTAGATGATGCGTGTGCTCTTCATTTCCGCTGTGTCATATTGC 1010
DB 901 AAAGAGGATCACCAATCTAGATGATGCGTGTGCTCTTCATTTCCGCTGTGTCATATTGC 960
QY 1011 AATGTGAAGACCGCAACAGATCTTTTAAACTTTCATCTTCGCGATGTCACACCATAGGAAT 1070
DB 961 AATGTGAAGACCGCAACAGATCTTTTAAACTTTCATCTTCGCGATGTCACACCATAGGAAT 1020
QY 1071 CCGAGGGGATATAGCGTCTTCATGTTGCTGCGATGCGGAAGGAGGCACCAATTTGATFAC 1130
DB 1021 CCGAGGGGATATAGCGTCTTCATGTTGCTGCGATGCGGAAGGAGGCACCAATTTGATFAC 1080
QY 1131 TCTCTATTGGAAGGAGTGAAGTGCATCAGAAGCAACTTTTGAAGGTAGAAGCGCACTC 1190
DB 1081 TCTCTATTGGAAGGAGTGAAGTGCATCAGAAGCAACTTTTGAAGGTAGAAGCGCACTC 1140
QY 1191 ATGATCGCAAAACAGGCACATATGCGGTTGATGTAATTAATTCGCGGAGCAATGCAAG 1250
DB 1141 ATGATCGCAAAACAGGCACATATGCGGTTGATGTAATTAATTCGCGGAGCAATGCAAG 1200
QY 1251 CATCTCTCAAGGCGGACTATGTTGTAAGATACTAGAGCAAGAGCAACAGAGACAA 1310
DB 1201 CATCTCTCAAGGCGGACTATGTTGTAAGATACTAGAGCAAGAGCAACAGAGACAA 1260
QY 1311 ATTCCTAGAGATGTTCCCTCTCTTTTGCAGTGGCGGCGGATGAATTTGAAGATGACGCTG 1370
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QY 1371 CTCGATCTTGAATATAGAGTTGCACTTGTCTCAAGCTCTTTTCCAGCGGAAGCACAAAGCT 1430
DB 1321 CTCGATCTTGAATATAGAGTTGCACTTGTCTCAAGCTCTTTTCCAGCGGAAGCACAAAGCT 1380
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DB 1381 GCAATGGAGATCGCGAAATGAAGGAAACATGTTGAGTTTCATGATGACTAGCCTCGAGCCT 1440
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DB 1501 CTAGAAGAGCATCAAGTAGACTAAAAGCGCTTTCTAAAACCGTTGGAACTCGGGAACGA 1560
QY 1611 TTCTTCCCGCGCTGTTCCGCGAGTCTCGACAGATTATGAACTGTGAGGACTTGAAC 1670
DB 1561 TTCTTCCCGCGCTGTTCCGCGAGTCTCGACAGATTATGAACTGTGAGGACTTGAAC 1620

QY 1671 CTGCTTCGAGAGACGACACTGCTGAGAAACGACTACAAAGAGCAAGGTTACATG 1730
DB 1621 CTGCTTCGAGAGAGACGACACTGCTGAGAAACGACTACAAAGAGCAAGGTTACATG 1680
QY 1731 GAAATACAAAGACACATAAAGAGGCTTTAGTGAGGACAAATTTGGAATTAGGAATTCG 1790
DB 1681 GAAATACAAAGACACATAAAGAGGCTTTAGTGAGGACAAATTTGGAATTAGGAATTCG 1740
QY 1791 TCCCTGACAGATTCGACTTCTCCACATCGAAATCAACCGGTGGAAGAGGCTTAACCGT 1850
DB 1741 TCCCTGACAGATTCGACTTCTCCACATCGAAATCAACCGGTGGAAGAGGCTTAACCGT 1800
QY 1851 AAATCTCTCATGCTCGGTGAGACTCTTGCTCTCTTAGTGTAAATTTTCTGTACCAT 1910
DB 1801 AAATCTCTCATGCTCGGTGAGACTCTTGCTCTCTTAGTGTAAATTTTCTGTACCAT 1860
QY 1911 ATAATCTGTTTTTCATGATGACTGTAACCTTTTATGTCATCTGCTGCTCATATAGTTT 1970
DB 1861 ATAATCTGTTTTTCATGATGACTGTAACCTTTTATGTCATCTGCTGCTCATATAGTTT 1920
QY 1971 CGCTCTCGTTTTTCATGCTGTTATTTATGTCGAGGTTGCTTCAACAAATGTTGTA 2030
DB 1921 CGCTCTCGTTTTTCATGCTGTTATTTATGTCGAGGTTGCTTCAACAAATGTTGTA 1980
QY 2031 ACAATTTGAACCAATGATACAGATTGTA 2061
DB 1981 ACAATTTGAACCAATGATACAGATTGTA 2011
RESULT 5
US-08-989-478-1
; Sequence 1, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING
; TITLE OF INVENTION: DISEASE RESISTANCE IN PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/989,478
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/033,177
; FILING DATE: 13-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 60/035,022
FILING DATE: 10-JAN-1997
ATTORNEY/AGENT INFORMATION:
NAME: Melis, J. Timothy
REGISTRATION NUMBER: 38,241
REFERENCE/DOCKET NUMBER: PF/5-21214/P1/CGC1911
TELECOMMUNICATION INFORMATION:
TELEPHONE: (919) 541-8587
TELEFAX: (919) 541-8689
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 5655 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
HYPOTHETICAL: NO
ANTI-SENSE: NO
FEATURE:
NAME/KEY: exon
LOCATION: 2787..3347
OTHER INFORMATION: /product= "1st exon of NIM1"
FEATURE:
NAME/KEY: exon
LOCATION: 3427..4162
OTHER INFORMATION: /product= "2nd exon of NIM1"
FEATURE:
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FEATURE:
NAME/KEY: exon
LOCATION: 4586..4866
OTHER INFORMATION: /product= "4th exon of NIM1"
FEATURE:
NAME/KEY: CDS
LOCATION: join(2787..3347, 3427..4162, 4271..4474, 4586..4866)
US-08-989-478-1

Query Match 83.7%; Score 1760; DB 2; Length 5655;
Best Local Similarity 87.5%; Pred. No. 0;
Matches 2088; Conservative 0; Mismatches 0; Indels 298; Gaps 3;

QY 1 TCGATCTTTAACCAATCCAGTTGATAGGTCCTTCGTTGATTAGCAGAGATCTCTTTA 60
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QY 61 ATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCAACCATTTGATGCGCG 120
DB 2755 ATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCAACCATTTGATGCGCG 2814
QY 121 ATTTCTTATGAATCAGCAGCAGTCTAGTTTCGTCGCTACCGATACACCGACTCTCTATTG 180
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DB 2935 CCAACAGCTTCGAATCCGCTCTTGNACTCGCCGGGATGATTTCTACAGCGAGCTTAAGCTTG 2994
QY 301 TTCTCTCCGAGCGCGGGAAGTTCTTTCCACCGGTGCGTTTGTCTACAGCAGAGAAGCTCTT 360
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QY 361 TCTTCAAGAGCGCTTTACCGCGCGGTGAAGAGGAGAAGACTCCAAACAACCGCGCGCG 420
DB 3055 TCTTCAAGAGCGCTTTACCGCGCGGTGAAGAGGAGAAGACTCCAAACAACCGCGCGCG 3114
QY 421 TCAAGCTCGAGCTTAAGGAGATTGCGAAGGATTACGAAGTTCGGTTTCGATTCGGTTGTGA 480

DB 3115 TGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTCGGTTTCGATTCGGTTGTGA 3174
QY 481 CTGTTTTCGGCTTATGTTTACAGCAGCAGAGCTGAGACCGCGCCTAAAGGAGTTTCTGAAT 540
DB 3175 CTGTTTTCGGCTTATGTTTACAGCAGCAGAGCTGAGACCGCGCCTAAAGGAGTTTCTGAAT 3234
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DB 3535 AAAGAGATTATTGTCAAGTCTAATGTAGATATGGTTAGTCTTGAAAAGTCATTTGCCGAA 3594
QY 822 GAGCTTGTAAAGAGATAATGTAGACGCTTAAGAGCTTGTGTTGGAGGTACCTAAAGTA 881
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QY 882 AAGAAACATGTCTCGAATGTACATAAGGCACCTTGACCTCGGATGATATTGAGTTAGTCAAG 941
DB 3655 AAGAAACATGTCTCGAATGTACATAAGGCACCTTGACCTCGGATGATATTGAGTTAGTCAAG 3714
QY 942 TTGCTTTTGAAGAGAGATCACCACCAATCTAGATGATCGGTGCTCTCTCATTTTCGCTGTT 1001
DB 3715 TTGCTTTTGAAGAGAGATCACCACCAATCTAGATGATCGGTGCTCTCTCATTTTCGCTGTT 3774
QY 1002 GCATATTCCAATGTGAAGACCGCAACAGATCTTTTAAACCTTGATCTTGCGGATGCAAC 1061
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QY 1062 CATAGAAATCCGAGGGATATACGGTGTCTCATGTTGCTCGGATGCGGAAGGAGCCACAA 1121
DB 3835 CATAGAAATCCGAGGGATATACGGTGTCTCATGTTGCTCGGATGCGGAAGGAGCCACAA 3894
QY 1122 TTGATACTATCTCTATTGGAAAAAGGTGCAAGTGCATCAGAACAACCTTTGGAAAGTAGA 1181
DB 3895 TTGATACTATCTCTATTGGAAAAAGGTGCAAGTGCATCAGAACAACCTTTGGAAAGTAGA 3954
QY 1182 ACCGCACCTCATGATCGCAAAACAAAGCCACATATGCGGTTTGAATGTATATATATCCCGGAG 1241
DB 3955 ACCGCACCTCATGATCGCAAAACAAAGCCACATATGCGGTTTGAATGTATATATATCCCGGAG 4014
QY 1242 CAATGCAAGACTTCTCTCAAGCGCGACTATGTAGAAAACTAGAGCAAGAACAA 1301
DB 4015 CAATGCAAGACTTCTCTCAAGCGCGACTATGTAGAAAACTAGAGCAAGAACAA 4074
QY 1302 CGAGAACAAATTCCTAGAGATGTTTCCCTCCTCTTTTTCAGTGGCGCGGATGAATGAAG 1361
DB 4075 CGAGAACAAATTCCTAGAGATGTTTCCCTCCTCTCTTTTTCAGTGGCGCGGATGAATGAAG 4134
QY 1362 ATGAGCTGCTCGATCTTGAATAAG----- 1387
DB 4135 ATGAGCTGCTCGATCTTGAATAAGTAGAGGTATCTATCAAGTCTTATTTCTTATATGTTTG 4194
QY 1388 ----- 1387
DB 4195 AATTAAATTTATGCTCTCTCTATTAGGAACTGAGTGAACATATGATATCTTTTGT 4254

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|---------------------------------------|------|--|------|---|
| QY | 1388 | -----AGTTGCACCTTGCTCAACGCTCTTTTCCAAACGGAAGCACAAGCTGCA | 1433 | NUMBER OF SEQUENCES: 32 |
| Db | 4255 | GTGCTCCACCTGTTTAGTTAGTTGACCTTGCTCAACGCTCTTTTCCAAACGGAAGCACAAGCTGCA | 4314 | CORRESPONDENCE ADDRESS: |
| QY | 1434 | ATGGAGATCCCGGAATGAAGGAAACATGTGAGTTCATAGTACTAGCCCTCGAGCCTGAC | 1493 | ADDRESSEE: NO. 6031153artis Corporation |
| Db | 4315 | ATGGAGATCCCGGAATGAAGGAAACATGTGAGTTCATAGTACTAGCCCTCGAGCCTGAC | 4374 | STREET: 3054 Cornwallis Road |
| QY | 1494 | CGTCTCACTGGTAGGAAGAAACATCACCGGGTGAAGATACGACCTTTCAGAATCCCTA | 1553 | CITY: Research Triangle Park |
| Db | 4375 | CGTCTCACTGGTAGGAAGAAACATCACCGGGTGAAGATACGACCTTTCAGAATCCCTA | 4434 | STATE: No. 6031153th Carolina |
| QY | 1554 | GAGAGCATCAAGTAGACTAAAGCGCTTCTTAAACC----- | 1592 | COUNTRY: USA |
| Db | 4435 | GAGAGCATCAAGTAGACTAAAGCGCTTCTTAAACC----- | 4494 | ZIP: 27709 |
| QY | 1593 | ----- | 1592 | COMPUTER READABLE FORM: |
| Db | 4495 | CATCGGACTCCTTATCACAAAAACAAACTAAATGATCTTTAAACATGGTTTTGTTACT | 4554 | MEDIUM TYPE: Floppy disk |
| QY | 1593 | -----GTGGAACCTCGGGAACGATTTCTCCGCGC | 1622 | COMPUTER: IBM PC compatible |
| Db | 4555 | TGCTGTCTGACCTTGTTTTTATCATCAGTSGAATCGGGAACGATTTCTCCGCGC | 4614 | OPERATING SYSTEM: PC-DOS/MS-DOS |
| QY | 1623 | TGTTCCGCACTGCTCGACCAAGATTTAGAACTGTGAGAGCTTGACTCAACTGGCTTCGCGA | 1682 | SOFTWARE: Patentin Release #1.0, Version #1.30 |
| Db | 4615 | TGTTCCGCACTGCTCGACCAAGATTTAGAACTGTGAGAGCTTGACTCAACTGGCTTCGCGA | 4674 | CURRENT APPLICATION DATA: |
| QY | 1683 | GAAGACGACACTGCTGAGAAACACTACAAAAGAACAAAGGTACATGGAATACAAAGAG | 1742 | APPLICATION NUMBER: US/08/996,685 |
| Db | 4675 | GAAGACGACACTGCTGAGAAACACTACAAAAGAACAAAGGTACATGGAATACAAAGAG | 4734 | FILING DATE: |
| QY | 1743 | ACACTAAAGAGCGCTTTAGTAGGAGCAATTTGGAAATTAGGAAATTCGCCCTGCACAGAT | 1802 | CLASSIFICATION: |
| Db | 4735 | ACACTAAAGAGCGCTTTAGTAGGAGCAATTTGGAAATTAGGAAATTCGCCCTGCACAGAT | 4794 | PRIOR APPLICATION DATA: |
| QY | 1803 | TGCACCTTCTCCACATCGAAATCAACCGGTGGAAAGAGCTCTAACCGTAAACTCTCTCAT | 1862 | APPLICATION NUMBER: US 60/034,730 |
| Db | 4795 | TCGACCTTCTCCACATCGAAATCAACCGGTGGAAAGAGCTCTAACCGTAAACTCTCTCAT | 4854 | FILING DATE: 10-JAN-1997 |
| QY | 1863 | CGTCGCGGTGAGACTCTTGCCCTCTTAGTGTAAATTTTGTCTGTACCATATAATTTCTGTTT | 1922 | APPLICATION NUMBER: US 60/035,021 |
| Db | 4855 | CGTCGCGGTGAGACTCTTGCCCTCTTAGTGTAAATTTTGTCTGTACCATATAATTTCTGTTT | 4914 | APPLICATION NUMBER: US 60/035,022 |
| QY | 1923 | TCATGATGACTGTAACCTGTTTATGCTATTCGTTGGCGTCATATAGTTTCGCTCTCTCGTTT | 1982 | FILING DATE: 10-JAN-1997 |
| Db | 4915 | TCATGATGACTGTAACCTGTTTATGCTATTCGTTGGCGTCATATAGTTTCGCTCTCTCGTTT | 4974 | PRIOR APPLICATION DATA: |
| QY | 1983 | TGCATCCTGTGTATTATGCTGCAGGTGCTTCAACAAATTTGTTGAACAATTTGAACC | 2042 | APPLICATION NUMBER: US 08/875,015 |
| Db | 4975 | TGCATCCTGTGTATTATGCTGCAGGTGCTTCAACAAATTTGTTGAACAATTTGAACC | 5034 | FILING DATE: 16-JUL-1997 |
| QY | 2043 | AATGGTATACAGATTGTAATATATATTTATGTACATCAACAATAA | 2088 | ATTORNEY/AGENT INFORMATION: |
| Db | 5035 | AATGGTATACAGATTGTAATATATATTTATGTACATCAACAATAA | 5080 | NAME: Meigs, J. Timothy |
| RESULT 6 | | | | REGISTRATION NUMBER: 38,241 |
| US-08-996-685-1 | | | | REFERENCE/DOCKET NUMBER: PF/5-21215/PL/CGC1912 |
| ; Sequence 1, Application US/08996685 | | | | TELECOMMUNICATION INFORMATION: |
| ; Patent No. 6031153 | | | | TELEPHONE: (919) 541-8587 |
| ; GENERAL INFORMATION: | | | | TELEFAX: (919) 541-8689 |
| ; APPLICANT: Rivals, John | | | | INFORMATION FOR SEQ ID NO: 1: |
| ; APPLICANT: Friedrich, Leslie | | | | SEQUENCE CHARACTERISTICS: |
| ; APPLICANT: Uknes, Scott | | | | LENGTH: 5655 base pairs |
| ; APPLICANT: Molina, Antonio | | | | TYPE: nucleic acid |
| ; APPLICANT: Ruess, Wilhelm | | | | STRANDEDNESS: single |
| ; APPLICANT: Knauf-Beiter, Gertrude | | | | TOPOLOGY: linear |
| ; APPLICANT: Kung, Ruth | | | | MOLECULE TYPE: DNA (genomic) |
| ; APPLICANT: Kessmann, Helmut | | | | HYPOTHETICAL: NO |
| ; APPLICANT: Oostendorp, Michael | | | | ANTI-SENSE: NO |
| ; APPLICANT: Oostendorp, Michael | | | | FEATURE: |
| ; APPLICANT: Oostendorp, Michael | | | | NAME/KEY: exon |
| ; APPLICANT: Oostendorp, Michael | | | | LOCATION: 2787..3347 |
| ; APPLICANT: Oostendorp, Michael | | | | OTHER INFORMATION: /product= "1st exon of NIM1" |
| ; APPLICANT: Oostendorp, Michael | | | | FEATURE: |
| ; APPLICANT: Oostendorp, Michael | | | | NAME/KEY: exon |
| ; APPLICANT: Oostendorp, Michael | | | | LOCATION: 3427..4162 |
| ; APPLICANT: Oostendorp, Michael | | | | OTHER INFORMATION: /product= "2nd exon of NIM1" |
| ; APPLICANT: Oostendorp, Michael | | | | FEATURE: |
| ; APPLICANT: Oostendorp, Michael | | | | NAME/KEY: exon |
| ; APPLICANT: Oostendorp, Michael | | | | LOCATION: 4271..4474 |
| ; APPLICANT: Oostendorp, Michael | | | | OTHER INFORMATION: /product= "3rd exon of NIM1" |
| ; APPLICANT: Oostendorp, Michael | | | | FEATURE: |
| ; APPLICANT: Oostendorp, Michael | | | | NAME/KEY: exon</ |

| | | | | | | | | | |
|--|------|--|------|--|--|--|--|--|--|
| ; NAME/KEY: exon | | | | | | | | | |
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| ; OTHER INFORMATION: /product= "4th exon of NIM1" | | | | | | | | | |
| ; FEATURE: | | | | | | | | | |
| ; NAME/KEY: CDS | | | | | | | | | |
| ; LOCATION: join(2787..3347, 3427..4162, 4271..4474, 4586..4866) | | | | | | | | | |
| ; US-08-996-685-1 | | | | | | | | | |
| Query Match 83.7%; Score 1760; DB 3; Length 5655; | | | | | | | | | |
| Best Local Similarity 87.5%; Pred. No. 0; | | | | | | | | | |
| Matches 2088; Conservative 0; Mismatches 0; Indels 298; Gaps 3; | | | | | | | | | |
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| Db | 2695 | TCGATCTTTAAACCAATCCAGTTGATAAGTCTCTTCGTTGATTAGCAGAGATCTCTTTA | 2754 | | | | | | |
| Qy | 61 | ATTTGTGAATTCNAATTCAGGAACCTGTTGATGACACCCACCATTTGATGGATTGCGCG | 120 | | | | | | |
| Db | 2755 | ATTTGTGAATTCNAATTCAGGAACCTGTTGATGACACCCACCATTTGATGGATTGCGCG | 2814 | | | | | | |
| Qy | 121 | ATTCCTTATGAATCAGCAGCAGTATTTCTGCTACCGGATAACCGACTCTCTTATTG | 180 | | | | | | |
| Db | 2815 | ATTCCTTATGAATCAGCAGCAGTATTTCTGCTACCGGATAACCGACTCTCTTATTG | 2874 | | | | | | |
| Qy | 181 | TTTATCTGGCGCGCGAACAAGTACTACCGGAGCTGATGATCTGCTCTGCAATTGCTCT | 240 | | | | | | |
| Db | 2875 | TTTATCTGGCGCGCGAACAAGTACTACCGGAGCTGATGATCTGCTCTGCAATTGCTCT | 2934 | | | | | | |
| Qy | 241 | CCACAGCTTCGAATCCGTTTGTGACTGCGCGGATGATTTCTACGGGAGGCTTAAGCTTG | 300 | | | | | | |
| Db | 2935 | CCACAGCTTCGAATCCGTTTGTGACTGCGCGGATGATTTCTACGGGAGGCTTAAGCTTG | 2994 | | | | | | |
| Qy | 301 | TTCTCTCCGAGCGCGGGAAGTTTCTTTCACCGGTCGCTTTTGTACGCGAGAAGCTCTT | 360 | | | | | | |
| Db | 2995 | TTCTCTCCGAGCGCGGGAAGTTTCTTTCACCGGTCGCTTTTGTACGCGAGAAGCTCTT | 3054 | | | | | | |
| Qy | 361 | TCCTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAGACTCCAACAACACCGCGCGG | 420 | | | | | | |
| Db | 3055 | TCCTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAGACTCCAACAACACCGCGCGG | 3114 | | | | | | |
| Qy | 421 | TGAAGCTCGAGCTTAAAGAGATGCCAAGGATACGAAGTACGAAGTCGGTTTCGATTCGGTGTGA | 480 | | | | | | |
| Db | 3115 | TGAAGCTCGAGCTTAAAGAGATGCCAAGGATACGAAGTACGAAGTCGGTTTCGATTCGGTGTGA | 3174 | | | | | | |
| Qy | 481 | CTGTTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCCCTAAAGAGATTTCTGAAT | 540 | | | | | | |
| Db | 3175 | CTGTTTTGGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCCCTAAAGAGATTTCTGAAT | 3234 | | | | | | |
| Qy | 541 | GCGCAGACGAGAAATTGCTGCCACGTGGCTTCCCGCGCGCGGTGGATTTTCATGTTGGAGG | 600 | | | | | | |
| Db | 3235 | GCGCAGACGAGAAATTGCTGCCACGTGGCTTCCCGCGCGCGGTGGATTTTCATGTTGGAGG | 3294 | | | | | | |
| Qy | 601 | TTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTACTCTCTA----- | 649 | | | | | | |
| Db | 3295 | TTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTACTCTCTATCAGGTAAAC | 3354 | | | | | | |
| Qy | 650 | ----- | 649 | | | | | | |
| Db | 3355 | ACCATCTGCATTAAGCTATGGTTACACATTCATGAATATGTTCTTACTTGAGTACTTGTA | 3414 | | | | | | |
| Qy | 650 | -----TCAGAGGCACCTTATTGGAGCTGTAGACAAAGTTGTTATAGAGGACACATTG | 701 | | | | | | |
| Db | 3415 | TTTGTTATTTACAGAGGCACCTTATTGGAGCTGTAGACAAAGTTGTTATAGAGGACACATTG | 3474 | | | | | | |
| Qy | 702 | GTTATACTCAAGCTTGCTTAATATATGTGGTAAAGCTTGTATGAAGCTATTGGATAGATGT | 761 | | | | | | |
| Db | 3475 | GTTATACTCAAGCTTGCTTAATATATGTGGTAAAGCTTGTATGAAGCTATTGGATAGATGT | 3534 | | | | | | |
| Qy | 762 | AAAGAGATTATTGCAAGTCTPAATGTAGATATGTTTGTGAAAAAGTCATTGCCGGAA | 821 | | | | | | |
| Db | 3535 | AAAGAGATTATTGCAAGTCTPAATGTAGATATGTTTGTGAAAAAGTCATTGCCGGAA | 3594 | | | | | | |
| Qy | 822 | GAGCTTGTNAAGAGATAATTGATAGACGTAAGAGCTTGGTTTGGAGGTACCTAAAGTA | 881 | | | | | | |

| | | | | | | | | | |
|----|------|---|------|--|--|--|--|--|--|
| Db | 3595 | GAGCTTGTAAAGAGATAAATTCATAGACGTAAGAGCTTGTTGGAGGTACCTAAAGTA | 3654 | | | | | | |
| Qy | 882 | AAGAAACATGCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGCTTAGTCAAG | 941 | | | | | | |
| Db | 3655 | AAGAAACATGCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAG | 3714 | | | | | | |
| Qy | 942 | TTGCTTTTGAAGAGGATCACACCAATCTAGATGATGGTGTGCTCTTTCATTTCGCTGTT | 1001 | | | | | | |
| Db | 3715 | TTGCTTTTGAAGAGGATCACACCAATCTAGATGATGGTGTGCTCTTTCATTTCGCTGTT | 3774 | | | | | | |
| Qy | 1002 | GCATATTGCAATGTGAACCGCAACAGATCTTTTAAACTTGATCTTGCCGATGTCAC | 1061 | | | | | | |
| Db | 3775 | GCATATTGCAATGTGAACCGCAACAGATCTTTTAAACTTGATCTTGCCGATGTCAC | 3834 | | | | | | |
| Qy | 1062 | CATAGGAATCCGAGGGGATATACGGTGTTCATGTTGCTGCGATGCGGAAGAGCCACAA | 1121 | | | | | | |
| Db | 3835 | CATAGGAATCCGAGGGGATATACGGTGTTCATGTTGCTGCGATGCGGAAGAGCCACAA | 3894 | | | | | | |
| Qy | 1122 | TTGATACTATCTCTATTGGAAAAAGTGCAAGTGCATCAGAAGCAACTTTGGAAGGTAGA | 1181 | | | | | | |
| Db | 3895 | TTGATACTATCTCTATTGGAAAAAGTGCAAGTGCATCAGAAGCAACTTTGGAAGGTAGA | 3954 | | | | | | |
| Qy | 1182 | ACCGCACTCATGATCGAAAAACAAGCCACTATGCGGTTGATGTAATAATATCCCGAG | 1241 | | | | | | |
| Db | 3955 | ACCGCACTCATGATCGAAAAACAAGCCACTATGCGGTTGATGTAATAATATCCCGAG | 4014 | | | | | | |
| Qy | 1242 | CAATGCAAGCATTTCTCAAAGCGGAGCTATGTGTAGAAATACTAGAGCAAGAAGACAAA | 1301 | | | | | | |
| Db | 4015 | CAATGCAAGCATTTCTCAAAGCGGAGCTATGTGTAGAAATACTAGAGCAAGAAGACAAA | 4074 | | | | | | |
| Qy | 1302 | CGAGAACAAATTCCTAGAGATGTTCTCCCTCTTTTGCAGTGGCGCGCGATGAATTGAAG | 1361 | | | | | | |
| Db | 4075 | CGAGAACAAATTCCTAGAGATGTTCTCCCTCTTTTGCAGTGGCGCGCGATGAATTGAAG | 4134 | | | | | | |
| Qy | 1362 | ATGACGCTGCTCGATCTTGAAAAATAG | 1387 | | | | | | |
| Db | 4135 | ATGACGCTGCTCGATCTTGAAAAATAGAGGTATCTATCAAGTCTTATTTCTTATATGTTTG | 4194 | | | | | | |
| Qy | 1388 | ----- | 1387 | | | | | | |
| Db | 4195 | AATTAATTTATGTCCTCTCTATTAGGAACTGAGTGAACATAATGATAACTATTCTTTGT | 4254 | | | | | | |
| Qy | 1388 | -----AGTTGCACCTTGCTCAACGCTCTTTTCCAACGGAAGACCAAGCTGCA | 1433 | | | | | | |
| Db | 4255 | GTCGTCACACTGTTAGTTGCACCTTGCTCAACGCTCTTTTCCAACGGAAGACCAAGCTGCA | 4314 | | | | | | |
| Qy | 1434 | ATGGAGATCGCGAAATGAAGGGAACATGTGAGTTTCATAGTACTAGCTCGAGCTGCAC | 1493 | | | | | | |
| Db | 4315 | ATGGAGATCGCGAAATGAAGGGAACATGTGAGTTTCATAGTACTAGCTCGAGCTGCAC | 4374 | | | | | | |
| Qy | 1494 | CGTCTCACCTGGTACGAAGAGAACATCACCGGTTGTAAGATAGCACCTTTTCAGAATCCTA | 1553 | | | | | | |
| Db | 4375 | CGTCTCACCTGGTACGAAGAGAACATCACCGGTTGTAAGATAGCACCTTTTCAGAATCCTA | 4434 | | | | | | |
| Qy | 1554 | GAAGAGCATCAAGTAGACTAAAGCGCTTTCTAAACC----- | 1592 | | | | | | |
| Db | 4435 | GAAGAGCATCAAGTAGACTAAAGCGCTTTCTAAACC----- | 4494 | | | | | | |
| Qy | 1593 | ----- | 1592 | | | | | | |
| Db | 4495 | CATCGGACTCCTTATCACAAAAACAAACTAAATGATCTTTAAACATGGTTTTGTACT | 4554 | | | | | | |
| Qy | 1593 | -----GTGGAACTCGGGAACAGATTCTCCCGGCG | 1622 | | | | | | |
| Db | 4555 | TGCTGTCTGACCTTGTTTTTTTATCATCAGTGAACCTCGGAAACGATTCTTCCCGGCG | 4614 | | | | | | |
| Qy | 1623 | TGTTCCGAGTGTCTCGACCAAGATTATGAAGTGTGAGGACTTCACTCAACTGCTTGGCGA | 1682 | | | | | | |
| Db | 4615 | TGTTCCGAGTGTCTCGACCAAGATTATGAAGTGTGAGGACTTCACTCAACTGCTTGGCGA | 4674 | | | | | | |
| Qy | 1683 | GAAGAGCAGACATGCTGAGAAAGAGCTTACAAAAAGAGCAAAAGGTACATGAAATACAAG | 1742 | | | | | | |

Db 4675 GAAGACGACACTGCTGAGAAACGACTACAAAGAGCAAGGATACATGGAATACAAG 4734
QY 1743 ACACATAAAGAGGCTTTAGTGAGGACAAATTTGGAATAGAAATTCGTCCCTGACAGAT 1802
Db 4735 ACACATAAAGAGGCTTTAGTGAGGACAAATTTGGAATAGAAATTCGTCCCTGACAGAT 4794
QY 1803 TCGACTTCTTCCACATCGAAATCAACCGGTGGAAGAGGTCTAACCGTAAACTCTCTCAT 1862
Db 4795 TCGACTTCTTCCACATCGAAATCAACCGGTGGAAGAGGTCTAACCGTAAACTCTCTCAT 4854
QY 1863 GTCGTCGGTGAGACTCTTGCGCTCTTAGTGTAATTTTGTGTTACCATATAAATCTCTTT 1922
Db 4855 GTCGTCGGTGAGACTCTTGCGCTCTTAGTGTAATTTTGTGTTACCATATAAATCTCTTT 4914
QY 1923 TCATGATGACTGTAACGTTTATCTCTATCTGCTGCGTCATATAGTTTCGTCCTCTTT 1982
Db 4915 TCATGATGACTGTAACGTTTATCTCTATCTGCTGCGTCATATAGTTTCGTCCTCTTT 4974
QY 1983 TGCATPCTGTGTATATTGCTGAGGTGCTTCAAAACAAATGTTGAACAAATTTGAACC 2042
Db 4975 TGCATPCTGTGTATATTGCTGAGGTGCTTCAAAACAAATGTTGAACAAATTTGAACC 5034
QY 2043 AATGGTATACAGATTTGTAATATATATTTATGTACATCAACAATAA 2088
Db 5035 AATGGTATACAGATTTGTAATATATATTTATGTACATCAACAATAA 5080

RESULT 7

US-08-880-179-2
; Sequence 2, Application US/08880179
; Patent No. 6091004
; GENERAL INFORMATION:
; APPLICANT: Ryals, John
; APPLICANT: Delaney, Terry
; APPLICANT: Friedrich, Leslie
; APPLICANT: Weymann, Kristianna
; APPLICANT: Lawton, Kay
; APPLICANT: Ellis, Daniel
; APPLICANT: Uknes, Scott
; APPLICANT: Jesse, Taco
; APPLICANT: Vos, Pieter
; TITLE OF INVENTION: GENE ENCODING A PROTEIN INVOLVED IN THE
; TITLE OF INVENTION: SIGNAL TRANSDUCTION CASCADE LEADING TO SYSTEMIC ACQUIRED RESIS
; TITLE OF INVENTION: IN PLANTS
; NUMBER OF SEQUENCES: 17
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 6091004artis Corporation
; STREET: 520 White Plains Road, P.O. Box 2005
; CITY: Tarrytown
; STATE: New York
; COUNTRY: USA
; ZIP: 10591
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/880,179
; FILING DATE:
; CLASSIFICATION: 800
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: CGC 1909
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (919) 541-8587
; TELEFAX: (919) 541-8689
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 5655 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single

; TOPOLOGY: linear
; MOLECULE TYPE: DNA (genomic)
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; FEATURE:
; NAME/KEY: exon
; LOCATION: 2787..3347
; OTHER INFORMATION: /product= "1st exon of NIM1"
; FEATURE:
; NAME/KEY: exon
; LOCATION: 3427..4162
; OTHER INFORMATION: /product= "2nd exon of NIM1"
; FEATURE:
; NAME/KEY: exon
; LOCATION: 4271..4474
; OTHER INFORMATION: /product= "3rd exon of NIM1"
; FEATURE:
; NAME/KEY: exon
; LOCATION: 4586..4866
; OTHER INFORMATION: /product= "4th exon of NIM1"
; NAME/KEY: CDS
; LOCATION: Join(2787..3347, 3427..4162, 4271..4474, 4586..4866)
; US-08-880-179-2

Query Match 83.7%; Score 1760; DB 3; Length 5655;

Best Local Similarity 87.5%; Pred. No. 0;

Matches 2088; Conservative 0; Mismatches 0; Indels 298; Gaps 3;

QY 1 TCGATCTTTAACCAATCCAGTTGATAAGTCTCTTCGTTGATTAGCAGAGATCTCTTTA 60
Db 2695 TCGATCTTTAACCAATCCAGTTGATAAGTCTCTTCGTTGATTAGCAGAGATCTCTTTA 2754
QY 61 ATTTGTGAATTTCAATTCATCGGAACCTGTTGATGACACACCACCAATGATGATTCGCG 120
Db 2755 ATTTGTGAATTTCAATTCATCGGAACCTGTTGATGACACACCACCAATGATGATTCGCG 2814
QY 121 ATTCATTGAATTCAGCAGCAGCTAGTTTCGTCGCTACCGATTAACACCGACTCCTCTATTG 180
Db 2815 ATTCATTGAATTCAGCAGCAGCTAGTTTCGTCGCTACCGATTAACACCGACTCCTCTATTG 2874
QY 181 TTATCTGCGCGCGCAACAAAGTACTCACCGGACCTGATGATCTGCTGCAATTCGCTCT 240
Db 2875 TTATCTGCGCGCGCAACAAAGTACTCACCGGACCTGATGATCTGCTGCAATTCGCTCT 2934
QY 241 CCAACAGCTTCGAATCCGCTTTTGACTCGCCGGATGATTTCTACAGCGACGCTAAGCTTG 300
Db 2935 CCAACAGCTTCGAATCCGCTTTTGACTCGCCGGATGATTTCTACAGCGACGCTAAGCTTG 2994
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Db 2995 TTCTCTCCGACGCGCGGGAAGTTTCTTCCACCGGTGCGTTTGTTCAGGAGAACTCTT 3054
QY 361 TCTTCAAGAGCGCTTTAGCGCGCGCTAAGAAGGAGAAAGACTCCAAACACACCGCGCG 420
Db 3055 TCTTCAAGAGCGCTTTAGCGCGCGCTAAGAAGGAGAAAGACTCCAAACACACCGCGCG 3114
QY 421 TGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTTCGGTTTCGATTCGGTTGTA 480
Db 3115 TGAAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTTCGGTTTCGATTCGGTTGTA 3174
QY 481 CTGTTTTGGCTTATGTTTACAGCAGCAGTGAGACCGCGCTAAAGAGTTTCTGAAT 540
Db 3175 CTGTTTTGGCTTATGTTTACAGCAGCAGTGAGACCGCGCTAAAGAGTTTCTGAAT 3234
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QY 650 -----TCAGAGGCACCTTATTGGAGCTTGTAGACAAAGTTGTTATAGAGGACACATTG 701
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QY 702 GTTATATCAAGCTTGCTAATATATATGTGGTAAAGCTTGATGAAGCTATTGGATAGATGT 761
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QY 762 AAAGAGATATTATGCAAGTCTAATGTAGATATGTTAGTCTTGAAAGTCAATTGGCCGGAA 821
Db 3535 AAAGAGATATTATGCAAGTCTAATGTAGATATGGTTAGTCTTGAAAGTCAATTGGCCGGAA 3594
QY 822 GAGCTTGTAAAGAGATAATTGTATAGACGTAAAGAGCTTGTTGGAGGTACCTAAAGTA 881
Db 3595 GAGCTTGTAAAGAGATAATTGTATAGACGTAAAGAGCTTGTTGGAGGTACCTAAAGTA 3654
QY 882 AAGAAACATGCTCGAATGTACATAAGGCACCTTGACCTCGATGATATTGAGTTAGTCAAG 941
Db 3655 AAGAAACATGCTCGAATGTACATAAGGCACCTTGACCTCGATGATATTGAGTTAGTCAAG 3714
QY 942 TTGCTTTTGAAGAGGATCACACCAATCTAGATGATCGGTGTGCTCTTCAATTTCGCTGTT 1001
Db 3715 TTGCTTTTGAAGAGGATCACACCAATCTAGATGATCGGTGTGCTCTTCAATTTCGCTGTT 3774
QY 1002 GCATATTGCAATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTTGCCGATGTCAAC 1061
Db 3775 GCATATTGCAATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTTGCCGATGTCAAC 3834
QY 1062 CATAGGAATCGAGGGGATATACGGTCTCATGTTCTGCGATGCGGAAGGAGCCACAA 1121
Db 3835 CATAGGAATCGAGGGGATATACGGTCTCATGTTCTGCGATGCGGAAGGAGCCACAA 3894
QY 1122 TTGATACTATCTCTATTGGAAAAGGTGCAAGTGCATCAGAAGCACTTTGGAAGGTAGA 1181
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Db 3955 ACCGACCTCATGATCGAAACAGCCACTATGCGGTGGAATGTAATATATATCCCGGAG 4014
QY 1242 CAATGCAAGCATCTCTCAAGGCGCACTATGTGTAGAAATACTAGACGAAGAGACAAA 1301
Db 4015 CAATGCAAGCATCTCTCAAGGCGCACTATGTGTAGAAATACTAGACGAAGAGACAAA 4074
QY 1302 CGAGAACAAATTCCTAGAGATGTTCCCTCCCTCTTTTGCAGTGGCGCGCGATGAATGAAG 1361
Db 4075 CGAGAACAAATTCCTAGAGATGTTCCCTCCCTCTTTTGCAGTGGCGCGCGATGAATGAAG 4134
QY 1362 ATGAGCGTCTCGATCTTTGAAATAG----- 1387
Db 4135 ATGAGCGTCTCGATCTTTGAAATAGAGGTATCTCAAGTCTTATTCTTATATGTTG 4194
QY 1388 ----- 1387
Db 4195 AATTAAATTTATGCTCTCTATTAGGAAACTGAGTGAACCTAATGATAACTATTTCCTTGT 4254
QY 1388 -----AGTTGCACCTTGCTCAAGCTCTTTTCCAAGGAGCACAGCTGCA 1433
Db 4255 GTGCTCCACTGTTTAGTTGCACTTGCTCAAGCTCTTTTCCAAGGAGCACAGCTGCA 4314
QY 1434 ATGAGATCGCGGAAATGAAGGAAACATGTGAGTTTCATAGTACTAGCCTCGAGCCTGAC 1493
Db 4315 ATGAGATCGCGGAAATGAAGGAAACATGTGAGTTTCATAGTACTAGCCTCGAGCCTGAC 4374
QY 1494 CGTCTACTGTTAGAGAGAACATCACCGGGGTGAAGATAGCACCTTTTCAGAAATCCTA 1553
Db 4375 CGTCTACTGTTAGAGAGAACATCACCGGGGTGAAGATAGCACCTTTTCAGAAATCCTA 4434
QY 1554 GAAGAGCATCAAGTAGACTAAAGCGGCTTTCTAAACCC----- 1592

Db 4435 GAAGAGCATCAAAAGTAGACTAAAGCGCTTCTTAAACCGGTATGGATTCTCACCCACTT 4494
QY 1593 ----- 1592
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Db 4555 TCCTGTCTGACCTTGTTTTATCATCAGTGGAACTCGGAAACGATTTCTCCCGGC 4614
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Db 4615 TGTTCGGCAGTCTCGACCAGATTAAGACTGTGAGGACTTGACTCAACTGGCTTGCAGA 4674
QY 1683 GAAGAGCAGACTGCTGAGAAACGACTACAAAAGAACGAAAGTACATGAAATACAAGAG 1742
Db 4675 GAAGAGCAGACTGCTGAGAAACGACTACAAAAGAACGAAAGTACATGAAATACAAGAG 4734
QY 1743 ACACATAAAGAGGCCCTTTAGTGAGGACAAATTTGGAATTTAGGAAATTCGTCCTGACAGAT 1802
Db 4735 ACACATAAAGAGGCCCTTTAGTGAGGACAAATTTGGAATTTAGGAAATTCGTCCTGACAGAT 4794
QY 1803 TCGACTTCTTCACATCGAAATCAACCGGTGGAAGAGGTCTAACCCGTAACCTCTCTCAT 1862
Db 4795 TCGACTTCTTCACATCGAAATCAACCGGTGGAAGAGGTCTAACCCGTAACCTCTCTCAT 4854
QY 1863 CGTCGTCGCTGAGACTCTTTCGCTCTTAGTGTAATTTTGTGTACCATATATTTCTGTTT 1922
Db 4855 CGTCGTCGCTGAGACTCTTTCGCTCTTAGTGTAATTTTGTGTACCATATATTTCTGTTT 4914
QY 1923 TCATGATGACTGTAACCTGTTTATGCTATGCTGTCGTCATATAGTTTCGCTCTTCGTTT 1982
Db 4915 TCATGATGACTGTAACCTGTTTATGCTATGCTGTCGTCATATAGTTTCGCTCTTCGTTT 4974
QY 1983 TGCATCCTCTGTTATTTATGCTGTCAGGTGCTTCAACAAATTTGTACCAATTTGAACC 2042
Db 4975 TGCATCCTCTGTTATTTATGCTGTCAGGTGCTTCAACAAATTTGTACCAATTTGAACC 5034
QY 2043 AATGTTATACAGATTTGTAATATATATATTTATGATACATCAACAATAA 2088
Db 5035 AATGTTATACAGATTTGTAATATATATATTTATGATACATCAACAATAA 5080

RESULT 8

US-08-179-1/c
; Sequence 1, Application US/08880179
; Patent No. 6091004
; GENERAL INFORMATION:
; APPLICANT: Ryals, John
; APPLICANT: Delaney, Terry
; APPLICANT: Friedrich, Leslie
; APPLICANT: Weymann, Kristianna
; APPLICANT: Lawton, Kay
; APPLICANT: Ellis, Daniel
; APPLICANT: Uknes, Scott
; APPLICANT: Jesse, Peter
; APPLICANT: Vos, Pieter
; TITLE OF INVENTION: GENE ENCODING A PROTEIN INVOLVED IN THE
; TITLE OF INVENTION: SIGNAL TRANSDUCTION CASCADE LEADING TO SYSTEMIC ACQUIRED RE
; NUMBER OF SEQUENCES: 17
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 6091004artis Corporation
; STREET: 520 White Plains Road, P.O. Box 2005
; CITY: Tarrytown
; STATE: New York
; COUNTRY: USA
; ZIP: 10591
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS

;; SOFTWARE: PatentIn Release #1.0, Version #1.30
;; CURRENT APPLICATION DATA:
;; APPLICATION NUMBER: US/08/880,179
;; FILING DATE:
;; CLASSIFICATION: 800
;; ATTORNEY/AGENT INFORMATION:
;; NAME: Meigs, J. Timothy
;; REGISTRATION NUMBER: 38,241
;; REFERENCE/DOCKET NUMBER: CGC 1909
;; TELECOMMUNICATION INFORMATION:
;; TELEPHONE: (919) 541-8587
;; TELEFAX: (919) 541-8689
;; INFORMATION FOR SEQ ID NO: 1:
;; SEQUENCE CHARACTERISTICS:
;; LENGTH: 9919 base pairs
;; TYPE: nucleic acid
;; STRANDEDNESS: single
;; TOPOLOGY: linear
;; MOLECULE TYPE: DNA (genomic)
;; HYPOTHEetical: NO
;; ANTI-SENSE: NO
US-08-880-179-1

Query Match 83.7% Score 1760; DB 3; Length 9919;

Best Local Similarity 87.5%; Pred.No. 0;

Matches 2088; Conservative 0; Mismatches 0; Indels 298; Gaps 3;

QY 1 TCGATCTTTAAACCAATCCAGTTCGATAGGTCTCTTCGTTGATAGCAGAGATCTCTTTA 60
DB TCGATCTTTAAACCAATCCAGTTCGATAGGTCTCTTCGTTGATAGCAGAGATCTCTTTA 3808
QY 61 ATTTCTGAATTCATTCATCGAACCTGTGATGGACACACCATGTGATTCGCGG 120
DB ATTTCTGAATTCATTCATCGAACCTGTGATGGACACACCATGTGATTCGCGG 3748
QY 121 ATTTCTGAATTCATTCATCGAACCTGTGATGGACACACCATGTGATTCGCGG 180
DB ATTTCTGAATTCATTCATCGAACCTGTGATGGACACACCATGTGATTCGCGG 3688
QY 181 TTATCTCGCGCGGCAAGTACTACCGGACCTGATGATCTGCTGCTGCAATTCCT 240
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DB CCAACAGCTTCGAAATCCGCTTTGACTCGCGGATGATTTCTACAGGACGCTTAAGCTTG 3568
QY 301 TTCTCTCGAGCGCGGGAAGTTTCTTCCACCGGTCGTTTGTGTCAGCAGAGCTCTT 360
DB TTCTCTCGAGCGCGGGAAGTTTCTTCCACCGGTCGTTTGTGTCAGCAGAGCTCTT 3508
QY 361 TCTTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAAGACTCCCAACACCGCGCGG 420
DB TCTTCAAGAGCGCTTTAGCCGCGCTAAGAGGAGAAAGACTCCCAACACCGCGCGG 3448
QY 421 TGAAGCTCGAGCTTAAGAGATTCGCAAGGATACGAAGTCGGTTTCGATTCGGTTGTA 480
DB TGAAGCTCGAGCTTAAGAGATTCGCAAGGATACGAAGTCGGTTTCGATTCGGTTGTA 3388
QY 481 CTGTTTTCGCTTATGTTTACAGCAGCAGAGTGAGACCGCGCTTAAAGAGGTTTCTGAAT 540
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QY 541 GCGCAGAGAGAAATTCGTCACGCTGGCTTCCGCGCGCGGCGGTTTCATGTTGGAGG 600
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QY 650 ----- 1592
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DB GTTATCTCAAGCTTGCCTAAT 3028
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QY 942 TTGCTTTTGAAGAGAGATCACACCAATCTAGATCATCGTGTCTCTCATTTTCGCTGT 1001
DB 2847 TTGCTTTTGAAGAGAGATCACACCAATCTAGATCATCGTGTCTCTCATTTTCGCTGT 2788
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DB GCATATTCGAATGTGAAGACGCGCAACAGATCTTTTAAACTTGTATTCGCGATGTCAAC 2728
QY 1062 CATAGGAATCGAGGATATACGCTCTCATGCTGCTCGATCGGAGGAGCCACAA 1121
DB 2727 CATAGGAATCGAGGATATACGCTCTCATGCTGCTCGATCGGAGGAGCCACAA 2668
QY 1122 TTGATCTATCTCTATTGGAAGAGGTCGAAGTGCATCAGAAGCAACTTTGGAAGTAGA 1181
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QY 1182 ACCGACCTCATGTCGCAACAGCCACATATGCGGTTTGAATGTAATATATATATATATATATATAT 1241
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QY 1242 CAATGCAAGCACTTCTCTCAAGAGCGGCTATGTGTAGAAATAGTAGCAAGAGACAA 1301
DB 2547 CAATGCAAGCACTTCTCTCAAGAGCGGCTATGTGTAGAAATAGTAGCAAGAGACAA 2488
QY 1302 CGAGAACAAATTCCTAGAGATGTTCTTCCCTCTTTTCCAGTGGCGCGGATGAATGAAG 1361
DB 2487 CGAGAACAAATTCCTAGAGATGTTCTTCCCTCTTTTCCAGTGGCGCGGATGAATGAAG 2428
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DB 2427 ATGAGCTGCTCGATCTTGAAGATAGAGGTATCTATCAAGTCTTATTTCTTATATGTTG 2368
QY 1388 ----- 1387
DB 2367 AATTAATTTATGCTCTCTTATTAGGAACTGAGTGAATGAATAATATATATTTGTTGT 2308
QY 1388 -----AGTTGCACTTGTCTCAAGCTCTTTTCCAGCGGAGCACAAGTGTCA 1433
DB 2307 GTCGTCACCTGTTTATGTTGCACTTGTCTCAAGCTCTTTTCCAGCGGAGCACAAGTGTCA 2248
QY 1434 ATGGAGATCGCGCAATATGAAGGAACTATGAGTTTCAATAGTACTAGCTTCGAGCTGAC 1493
DB 2247 ATGGAGATCGCGCAATATGAAGGAACTATGAGTTTCAATAGTACTAGCTTCGAGCTGAC 2188
QY 1494 GCTCTCACTGCTACGAGAGAACATCACCGGCTGTAAGATAGCACCTTTTCAAGATCCTA 1553
DB 2187 GCTCTCACTGCTACGAGAGAACATCACCGGCTGTAAGATAGCACCTTTTCAAGATCCTA 2128
QY 1554 GAAGAGCATCAAAGTAGACTAAAAGCGCTTTCTTAAAC ----- 1592
DB 2127 GAAGAGCATCAAAGTAGACTAAAAGCGCTTTCTTAAACCGGATGATGATTTCTCACCACCTT 2068

QY 1593 ----- 1592
Db 2067 CATCGGACTCCTTTATCACAAACAAACAACTAAATGATCTTTAAACATGGTTTGTACT 2008
QY 1593 -----GTGGAAGTGGGAAAGGATTTCTTCGCGGC 1622
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QY 1623 TGTTCGGCAGTGTCTGACAGATTTATGAATGTGAGGACTTGACTCAACTGGCTTGCAG 1682
Db 1947 TGTTCGGCAGTGTCTGACAGATTTATGAATGTGAGGACTTGACTCAACTGGCTTGCAG 1888
QY 1683 GAAGACGACACTGCTGAGAACGACTACAAAGAACAAAGGTACATGGAATACAGAG 1742
Db 1887 GAAGACGACACTGCTGAGAACGACTACAAAGAACAAAGGTACATGGAATACAGAG 1828
QY 1743 AACTAAGAGGCTTTAGTGAGGACAATTTGGAATTTAGGAATTCGTCCTGACAGAT 1802
Db 1827 AACTAAGAGGCTTTAGTGAGGACAATTTGGAATTTAGGAATTCGTCCTGACAGAT 1768
QY 1803 TCGACTTCTCCACATCGAAATCAACCGGTGGAAGAGTCTTAACCGTAAACTCTCTCAT 1862
Db 1767 TCGACTTCTCCACATCGAAATCAACCGGTGGAAGAGTCTTAACCGTAAACTCTCTCAT 1708
QY 1863 CGTCGCGTGAGACTCTGCCTCTAGTGTAAATTTTCTGTACCATATAATCTGTTT 1922
Db 1707 CGTCGCGTGAGACTCTGCCTCTAGTGTAAATTTTCTGTACCATATAATCTGTTT 1648
QY 1923 TCATGATGACTGTAACTGTTTATGCTCTATCTGTTGGGTCTATAGTTTCGCTCTCGTTT 1982
Db 1647 TCATGATGACTGTAACTGTTTATGCTCTATCTGTTGGGTCTATAGTTTCGCTCTCGTTT 1588
QY 1983 TGCATCTGTGTATATGCTGAGGTGCTTCAACAAATGTTGTAACAATTTGAACC 2042
Db 1587 TGCATCTGTGTATATGCTGAGGTGCTTCAACAAATGTTGTAACAATTTGAACC 1528
QY 2043 AATGGTATACAGATTTGTAATATATATTTATGTAACATCAACAATAA 2088
Db 1527 AATGGTATACAGATTTGTAATATATATTTATGTAACATCAACAATAA 1482

RESULT 9
US-08-989-478-11
; Sequence 11, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING
; TITLE OF INVENTION: DISEASE RESISTANCE IN PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/989,478
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/033,177
; FILING DATE: 13-DEC-1996

; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: PF/S-21214/PI/CGC1911
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (919) 541-8587
; TELEFAX: (919) 541-8689
; INFORMATION FOR SEQ ID NO: 11:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 1608 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: cDNA
; FEATURE:
; NAME/KEY: CDS
; LOCATION: 43..1608
; OTHER INFORMATION: /product= "Altered form of NIM1"
; OTHER INFORMATION: /note= "C-terminal deletion compared to wild-type NIM1."
US-08-989-478-11

Query Match 76.3%; Score 1605; DB 2; Length 1608;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1605; Conservative 0; Mismatches 0; Gaps 0;
QY 51 GATCTCTTTAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCACTTGTAT 110
Db 1 GATCTCTTTAATTTGTGAATTTCAATTCATCGGAACCTGTTGATGGACACCACTTGTAT 60
QY 111 GGATTCGCCGATTTCTTATGAAATCAGCAGCACTAGTTTCGTCCTACCGATACACCGAC 170
Db 61 GGATTCGCCGATTTCTTATGAAATCAGCAGCACTAGTTTCGTCCTACCGATACACCGAC 120
QY 171 TCCTCTATTGTTTATCTGCGCGCGGAAAGTACTCACCAGGACCTGATGTATCTGCTCTG 230
Db 121 TCCTCTATTGTTTATCTGCGCGCGGAAAGTACTCACCAGGACCTGATGTATCTGCTCTG 180
QY 231 CAATTCGCTCTCCAAACAGCTTCGAATCCGCTTTTGACTCCCGGATGATTTCTACAGCGAC 290
Db 181 CAATTCGCTCTCCAAACAGCTTCGAATCCGCTTTTGACTCCCGGATGATTTCTACAGCGAC 240
QY 291 GCTAAGCTGTTCTCTCCGACGCCCGGGAAGTTTCTTCCACCGGTGCGTTTGTGTCAGCG 350
Db 241 GCTAAGCTGTTCTCTCCGACGCCCGGGAAGTTTCTTCCACCGGTGCGTTTGTGTCAGCG 300
QY 351 AGAAGCTCTTTCTTCAAGAGCGCTTTTAGCGCGCTTAAAGAGGAGAAAGACTCCCAACAC 410
Db 301 AGAAGCTCTTTCTTCAAGAGCGCTTTTAGCGCGCTTAAAGAGGAGAAAGACTCCCAACAC 360
QY 411 ACCGCGCGCGTGAAGCTTCGAGCTTAAAGAGATTTCCAAAGATTTACGAAGTTCGGTTTCGAT 470
Db 361 ACCGCGCGCGTGAAGCTTCGAGCTTAAAGAGATTTCCAAAGATTTACGAAGTTCGGTTTCGAT 420
QY 471 TCGGTTGTGACTGTTTTCGCTTTATGTTTACAGCAGCAGAGTGAGACCGCGCTAAAGGA 530
Db 421 TCGGTTGTGACTGTTTTCGCTTTATGTTTACAGCAGCAGAGTGAGACCGCGCTAAAGGA 480
QY 531 GTTTCTGAATCGCAGACGAGAAATTTGCTGTCAGGTGCTTTCGCGCGCGCGGTGGATTTTC 590

Db 481 GTTCTGAATGCGCAGACGAGAAATTGCTGCCACGTTGGCTTGCGCGCGGTGGATTTC 540
QY 591 ATGTTGAGGTTCTCTATTGTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTACTCTCTAT 650
Db 541 ATGTTGAGGTTCTCTATTGTTGGCTTTTCATCTTCAAGATCCCTGAATTAATTACTCTCTAT 600
QY 651 CAGAGGCACCTATTGAGCGTTGTAGACAAAGTTGTTATAGAGGACACATTGGTTATACATC 710
Db 601 CAGAGGCACCTATTGAGCGTTGTAGACAAAGTTGTTATAGAGGACACATTGGTTATACATC 660
QY 711 AAGCTTGCTAATATATATGTTGTAAGCTTGTATGAAGCTATTTGATAGATGTAAGAGATT 770
Db 661 AAGCTTGCTAATATATGTTGTAAGCTTGTATGAAGCTATTTGATAGATGTAAGAGATT 720
QY 771 ATTGTCAAGTCTAATGTAGATATGTTAGTCTTGAAGGTCATTGCCGGAAGAGCTTGT 830
Db 721 ATTGTCAAGTCTAATGTAGATATGTTAGTCTTGAAGGTCATTGCCGGAAGAGCTTGT 780
QY 831 AAAGAGATAATTGATAGACCTTAAGAGCTTGGTTTGGAGGTACCTAAAGTAAAGAAACAT 890
Db 781 AAAGAGATAATTGATAGACCTTAAGAGCTTGGTTTGGAGGTACCTAAAGTAAAGAAACAT 840
QY 891 GTCCTGAATGTACATAGGCACTTGACTCGGATGATATTCAGTACTGCAAGTTGCTTTTG 950
Db 841 GTCCTGAATGTACATAGGCACTTGACTCGGATGATATTCAGTACTGCAAGTTGCTTTTG 900
QY 951 AAAGAGATCACACCAATCTAGATGATGCTGCTCTTCATTTCGCTGTTGCATATTGC 1010
Db 901 AAAGAGATCACACCAATCTAGATGATGCTGCTCTTCATTTCGCTGTTGCATATTGC 960
QY 1011 AATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTGCCGATGTCACCATAGGAAT 1070
Db 961 AATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTGCCGATGTCACCATAGGAAT 1020
QY 1071 CCGAGGGGATATAGGTTGCTTCATGTTGCTCGATGCGGAGGACACAAATTTGATACTA 1130
Db 1021 CCGAGGGGATATAGGTTGCTTCATGTTGCTCGATGCGGAGGACACAAATTTGATACTA 1080
QY 1131 TCTCTATTGGAAGGAGTGAAGTGCATCAGAACCACTTTGGAAGGTAGAACCGCACTC 1190
Db 1081 TCTCTATTGGAAGGAGTGAAGTGCATCAGAACCACTTTGGAAGGTAGAACCGCACTC 1140
QY 1191 ATGATCGCAAAACAGGCACATATGCGGTTGAATGTAATAATATCCCGGAGCAATGCAAG 1250
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QY 1251 CATTCCTCAAGGCGGACTATGTTAGAATACTAGAGCAAGAACACAAACGAGAACAA 1310
Db 1201 CATTCCTCAAGGCGGACTATGTTAGAATACTAGAGCAAGAACACAAACGAGAACAA 1260
QY 1311 ATTCCTAGAGATGTTCCCTCCCTCTTTTGCAGTGGCGCGGATGAATTTGAAGATGACGCTG 1370
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Db 1381 GCAATGGAGATGCGCGAATGAAGGACATGTCAGTTCATAGTACTAGCTAGCCTCGAGCCT 1440
QY 1491 GACCTCTCACTGTTACGAAGAACATACCCGGGTGTAAAGATAGACCTTTTCAAGATC 1550
Db 1441 GACCTCTCACTGTTACGAAGAACATACCCGGGTGTAAAGATAGACCTTTTCAAGATC 1500
QY 1551 CTAGAGAGCATCAAGTAGACTTAAGCGCTTTTCTAAACCGTGGAGCTCGGGAACGA 1610
Db 1501 CTAGAGAGCATCAAGTAGACTTAAGCGCTTTTCTAAACCGTGGAGCTCGGGAACGA 1560
QY 1611 TTCTTCCCGCGCTGTTCCGGCAGTGTCTGACACAGATTATGAAGTGT 1655
|||||
Db 1561 TTCTTCCCGCGCTGTTCCGGCAGTGTCTGACACAGATTATGAAGTGT 1605

RESULT 10
US-08-996-685-11
; Sequence 11, Application US/08996685
; Patent No. 6031153
; GENERAL INFORMATION:
; APPLICANT: Ryals, John
; APPLICANT: Friedrich, Leslie
; APPLICANT: Uknes, Scott
; APPLICANT: Molina, Antonio
; APPLICANT: Ruess, Wilhelm
; APPLICANT: Knauf-Beiter, Gertrude
; APPLICANT: Kung, Ruth
; APPLICANT: Kessmann, Helmut
; APPLICANT: Oostendorp, Michael
; TITLE OF INVENTION: METHOD FOR PROTECTING PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 6031153artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 6031153th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/996,685
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/761,543
; FILING DATE: 6-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,378
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,024
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/875,015
; FILING DATE: 16-JUL-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: PF/5-21215/P1/CGC1912
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (919) 541-8587
; TELEFAX: (919) 541-8689
; INFORMATION FOR SEQ ID NO: 11:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 1608 base pairs
; TYPE: nucleic acid

STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: CDNA
FEATURE:
NAME/KEY: CDS
LOCATION: 43..1608
OTHER INFORMATION: /product= "Altered form of NIMI"
OTHER INFORMATION: /note= "C-terminal deletion compared to wild-type NIMI."
US-08-996-685-11

Query Match 76.3%; Score 1605; DB 3; Length 1608;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1605; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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DB 61 GGATTCGCCGATTTTATGAATTCAGCAGCACTAGTTTGTGCTACCGATAAACACCGAC 120
QY 171 TCCTCTATTGTTTATCTGCGCGGCAACAAAGTACTACCGGACCTGATGATCTGCTG 230
DB 121 TCCTCTATTGTTTATCTGCGCGGCAACAAAGTACTACCGGACCTGATGATCTGCTG 180
QY 231 CAATTGCTCTCCAAACAGCTTCGAATCCGCTTTGACTCGCGGATGATTTCTACAGCGAC 290
DB 181 CAATTGCTCTCCAAACAGCTTCGAATCCGCTTTGACTCGCGGATGATTTCTACAGCGAC 240
QY 291 GCTAAGCTTGTCTCTCCGACGCGGGAAGTTTCTTCCACCGGTGCGTTTGTGTCAGCG 350
DB 241 GCTAAGCTTGTCTCTCCGACGCGGGAAGTTTCTTCCACCGGTGCGTTTGTGTCAGCG 300
QY 351 AGAAGCTCTTCTTAAGAGCGCTTTAGCGCGCGCTAAGAGAGAAAGACTCCACAAAC 410
DB 301 AGAAGCTCTTCTTAAGAGCGCTTTAGCGCGCGCTAAGAGAGAAAGACTCCACAAAC 360
QY 411 ACCGCGCGCTGAAGCTTCGAGCTTAAGAGATTCGCAAGGATTTACGAAGTTCGAT 470
DB 361 ACCGCGCGCTGAAGCTTCGAGCTTAAGAGATTCGCAAGGATTTACGAAGTTCGAT 420
QY 471 TCGTGTGACTGTTTGTGCTTATGTTTACAGCAGAGTGAAGCGCGCTTAAGGA 530
DB 421 TCGTGTGACTGTTTGTGCTTATGTTTACAGCAGAGTGAAGCGCGCTTAAGGA 480
QY 531 GTTCTGAATTCGCGAGACGAGATTCGTCACGCTGCTTGCAGCGCGGCTGGAATTC 590
DB 481 GTTCTGAATTCGCGAGACGAGATTCGTCACGCTGCTTGCAGCGCGGCTGGAATTC 540
QY 591 ATGTTGGAGTTCTCTATTGGCTTTTCTATCTCAAGATCCCTGAATTAATTAATCTCTAT 650
DB 541 ATGTTGGAGTTCTCTATTGGCTTTTCTATCTCAAGATCCCTGAATTAATTAATCTCTAT 600
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QY 711 AAGCTTCTTAATATATGTTGAAGCTTGTATGAAGCTATTGGATAGATCTAAAGAGATT 770
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QY 831 AAAGAGATAATTGATAGACGTTGAAGCTTGTGTTGAGGTACCTAAAGTAAAGAACAT 890
DB 781 AAAGAGATAATTGATAGACGTTGAAGCTTGTGTTGAGGTACCTAAAGTAAAGAACAT 840
QY 891 GTCTCGAATGTACATAAGGCACTTGAATCGGATGATATTGAGTTAGTCAAGTTGCTTTG 950
DB 841 GTCTCGAATGTACATAAGGCACTTGAATCGGATGATATTGAGTTAGTCAAGTTGCTTTG 900

QY 951 AAAGAGATCACACCAATCTAGATGATGCGTGTCTCTTCAATTTCCGCTGTTGCAATATGC 1010
DB 901 AAAGAGATCACACCAATCTAGATGATGCGTGTCTCTTCAATTTCCGCTGTTGCAATATGC 960
QY 1011 AATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTTCCGATGTCAACCATATGAAT 1070
DB 961 AATGTGAAGACCGCAACAGATCTTTTAAACTTGATCTTCCGATGTCAACCATATGAAT 1020
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DB 1021 CCGAGGGATATACGGTCTTCATCTTGTGCTGCGTGAAGGAGGACACAAATGTACTA 1080
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DB 1201 CATCTCTCAAAGCGCACTATGTTAGAAATACTAGAGCAAGAACACAGAGAACAA 1260
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DB 1261 ATTCCTAGAGATGTTCTCCCTCTTTTGCAGTGGCGCGGATGAATTTGAAGATGACCGCTG 1320
QY 1371 CTCGATCTTGAATATAGAGTTGCACTTGTCTCAAGCTCTTTTCCAAAGGAGCAACAAGCT 1430
DB 1321 CTCGATCTTGAATATAGAGTTGCACTTGTCTCAAGCTCTTTTCCAAAGGAGCAACAAGCT 1380
QY 1431 GCAATGGAGATCGCGAATGAAGGAAACATGTGAGTTCATAGTACTAGCTCGAGCCT 1490
DB 1381 GCAATGGAGATCGCGAATGAAGGAAACATGTGAGTTCATAGTACTAGCTCGAGCCT 1440
QY 1491 GACCGTCTACTGTTACGAAGAACATCACCGGCTGTAAAGATAGCACCTTTCCAGAAATC 1550
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QY 1551 CTAGAAGAGACTCAAAGTAGACTAAAAGCGCTTTCTAAAACCGTGGAACTCGGAAACGA 1610
DB 1501 CTAGAAGAGACTCAAAGTAGACTAAAAGCGCTTTCTAAAACCGTGGAACTCGGAAACGA 1560
QY 1611 TTCTTCCCGCGCTGTTGCGGAGTCTCGACCATGATTAAGAACTGT 1655
DB 1561 TTCTTCCCGCGCTGTTGCGGAGTCTCGACCATGATTAAGAACTGT 1605

RESULT 11
US-08-989-478-9
; Sequence 9, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIMI GENE CONFERRING
; TITLE OF INVENTION: DISEASE RESISTANCE IN PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA: US/08/989, 478
APPLICATION NUMBER: US/08/989, 478
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/033,177
FILING DATE: 13-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034, 379
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034, 382
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034, 730
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035, 021
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035, 022
FILING DATE: 10-JAN-1997
ATTORNEY/AGENT INFORMATION:
NAME: Meigs, J. Timothy
REGISTRATION NUMBER: 38,241
REFERENCE/DOCKET NUMBER: PF/5-21214/P1/CGC1911
TELECOMMUNICATION INFORMATION:
TELEPHONE: (919) 541-8587
TELEFAX: (919) 541-8689
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 1597 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: cdna
FEATURE:
NAME/KEY: CDS
LOCATION: 1..1410
OTHER INFORMATION: /product= "Altered form of NIM1"
OTHER INFORMATION: /note= "N-terminal deletion compared to wild-type NIM1"
OTHER INFORMATION: sequence."
us-08-989-478-9

Query Match 75.7%; Score 1592.8; DB 2; Length 1597;

Best Local Similarity 99.9%; Pred. No. 0;

Matches 1594; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

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| Db | 2 | TGGATTTCGGTTGTGACTGTTTGGCTTATGTTTACAGCAGCAGAGTGCAGACCGCGGCTA | 61 |
| Qy | 526 | AAGAGTTTCTGAATGCCAGACAGAGAAATGCTGCCACGTGGCTTCCGCGCGCGGCTGG | 585 |
| Db | 62 | AAGAGTTTCTGAATGCCAGACAGAGAAATGCTGCCACGTGGCTTCCGCGCGCGGCTGG | 121 |
| Qy | 586 | ATTTTCATGTTGGAGTTCTCTATTGGCTTTCATCTTCAAGATCCCTGAAATTAATCTC | 645 |
| Db | 122 | ATTTTCATGTTGGAGTTCTCTATTGGCTTTCATCTTCAAGATCCCTGAAATTAATCTC | 181 |
| Qy | 646 | TCTATCAGAGGCACCTTATTGGACCTTGTAGACAAAGTTGTTATAGAGGCACACATTGGTTA | 705 |
| Db | 182 | TCTATCAGAGGCACCTTATTGGACCTTGTAGACAAAGTTGTTATAGAGGCACACATTGGTTA | 241 |
| Qy | 706 | TACTCAAGCTTGCPTAATATATGTGGTAAAGCTTGATGAAGCTATTGGATAGATGTAAG | 765 |
| Db | 242 | TACTCAAGCTTGCPTAATATATGTGGTAAAGCTTGATGAAGCTATTGGATAGATGTAAG | 301 |
| Qy | 766 | AGATTATTGCAAGCTCTAATGTAGATATGGTTAGTCTTTGAAAGATCAATGCCGGAAGGC | 825 |
| Db | 302 | AGATTATTGCAAGCTCTAATGTAGATATGGTTAGTCTTTGAAAGATCAATGCCGGAAGGC | 961 |

| | | | |
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| Qy | 826 | TTGTTAAAGAGATAATTGATAGACGTAAGAGAGCTTGGTTTGGAGGTACCTAAAGTAAGA | 885 |
| Db | 362 | TTGTTAAAGAGATAATTGATAGACGTAAGAGAGCTTGGTTTGGAGGTACCTAAAGTAAGA | 421 |
| Qy | 886 | AACATGCTCGAATGTACATAAGGCACCTTGAATCGGATGATATTGAGTTAGTCAAGTTGC | 945 |
| Db | 422 | AACATGCTCGAATGTACATAAGGCACCTTGAATCGGATGATATTGAGTTAGTCAAGTTGC | 481 |
| Qy | 946 | TTTTGAAAGAGGATCACACCAATCTAGATGATGCGGTGCTCTTCATTTTCGCTGTGTCAT | 1005 |
| Db | 482 | TTTTGAAAGAGGATCACACCAATCTAGATGATGCGGTGCTCTTCATTTTCGCTGTGTCAT | 541 |
| Qy | 1006 | ATTGCAATGTGAAGACCGGCAACAGATCTTTTAAACCTTGATCTTGGCGATGTCAACCAT | 1065 |
| Db | 542 | ATTGCAATGTGAAGACCGGCAACAGATCTTTTAAACCTTGATCTTGGCGATGTCAACCAT | 601 |
| Qy | 1066 | GGATCCGAGGGGATATACGGTGTCTTCATGTTGCTGCGATGCGAAGGAGCCACAAATGA | 1125 |
| Db | 602 | GGATCCGAGGGGATATACGGTGTCTTCATGTTGCTGCGATGCGAAGGAGCCACAAATGA | 561 |
| Qy | 1126 | TACTATCTCTATTGGAAAGAGTGAAGTGCATGCAAGCAACTTTTGAAGTAGAAGCG | 1185 |
| Db | 662 | TACTATCTCTATTGGAAAGAGTGAAGTGCATGCAAGCAACTTTTGAAGTAGAAGCG | 721 |
| Qy | 1186 | CACATCATGATCGCAAAACAGCCACTATGCGGTGTAATGTAATATATATCCCGAGCAAT | 1245 |
| Db | 722 | CACATCATGATCGCAAAACAGCCACTATGCGGTGTAATGTAATATATATCCCGAGCAAT | 781 |
| Qy | 1246 | GCAAGCATTTCTCTCAAAAGCCGACTATGTGTAGAAATACCTAGAGCAAGCAACACGAG | 1305 |
| Db | 782 | GCAAGCATTTCTCTCAAAAGCCGACTATGTGTAGAAATACCTAGAGCAAGCAACACGAG | 841 |
| Qy | 1306 | AACAAATTCCTAGAGATGTTCTCCCTCTTTTGCAGTGGCGGCGGATGAATTAAGATGA | 1365 |
| Db | 842 | AACAAATTCCTAGAGATGTTCTCCCTCTTTTGCAGTGGCGGCGGATGAATTAAGATGA | 901 |
| Qy | 1366 | CGCTGCTCGATCTTGAAATAGAGTTGCACCTTGCCTCAAGCTCTTTTCCAAAGGAGCAC | 1425 |
| Db | 902 | CGCTGCTCGATCTTGAAATAGAGTTGCACCTTGCCTCAAGCTCTTTTCCAAAGGAGCAC | 961 |
| Qy | 1426 | AAGCTCAATGGAGATCGCGGAAATGAAGGGAACATGTGAGTTTCATAGTACTAGCCTCG | 1485 |
| Db | 962 | AAGCTCAATGGAGATCGCGGAAATGAAGGGAACATGTGAGTTTCATAGTACTAGCCTCG | 1021 |
| Qy | 1486 | AGCTGACCGCTCTACTGCTACAGAGAACATCACCAGGCTGTAAGATAGACACCTTTCA | 1545 |
| Db | 1022 | AGCTGACCGCTCTACTGCTACAGAGAACATCACCAGGCTGTAAGATAGACACCTTTCA | 1081 |
| Qy | 1546 | GAATCTTAGAAGAGCATCAAAAGTAGACTTAAAGCGCTTTCTAAAACCGTGGAACTCGGA | 1605 |
| Db | 1082 | GAATCTTAGAAGAGCATCAAAAGTAGACTTAAAGCGCTTTCTAAAACCGTGGAACTCGGA | 1141 |
| Qy | 1606 | AAGGATTTCTCCCGCGCTGTTCCGGCAGTCTCGACAGATTATGAATGTGAGGACTTGA | 1665 |
| Db | 1142 | AAGGATTTCTCCCGCGCTGTTCCGGCAGTCTCGACAGATTATGAATGTGAGGACTTGA | 1201 |
| Qy | 1666 | CTCAACTGCGTTGCGGAGAGAGACACACTGCTGAGAAACGACTACAAAAGAGCAAGGT | 1725 |
| Db | 1202 | CTCAACTGCGTTGCGGAGAGAGACACACTGCTGAGAAACGACTACAAAAGAGCAAGGT | 1261 |
| Qy | 1726 | ACATGGAATACAAAGAGACACTTAAAGAGCGCTTTAGTGAGGACAAATTTGGAAATTAGGA | 1785 |
| Db | 1262 | ACATGGAATACAAAGAGACACTTAAAGAGCGCTTTAGTGAGGACAAATTTGGAAATTAGGA | 1321 |
| Qy | 1786 | ATTGCTCCCTGACAGATTCGACTTCTTCCACATCGAAATCAACCGGTGGAAAGAGTCTTA | 1845 |
| Db | 1322 | ATTGCTCCCTGACAGATTCGACTTCTTCCACATCGAAATCAACCGGTGGAAAGAGTCTTA | 1381 |
| Qy | 1846 | ACCGTAAACTCTCTCATCGTTCGGTGAGACTCTTTGCGCTCTTAGTGTAAATTTTTCGTGT | 1905 |
| Db | 1382 | ACCGTAAACTCTCTCATCGTTCGGTGAGACTCTTTGCGCTCTTAGTGTAAATTTTTCGTGT | 1441 |
| Qy | 1906 | ACCATATAATTTCTGTTTTTCATGATGACTGTAATCTTTATGTTATGCTTGGCGTCATAT | 1965 |

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Db 1442 ACCATAATTCGTTTTCATGATGACTGAACGTGTTATGCTATCGTTGGCGTCATAT 1501
QY 1966 AGTTTCGCTCTCGTTTTCGTCATCCTGTGTATTATTGCTGCAGGTGTGCTTCAAAACAATG 2025
Db 1502 AGTTTCGCTCTCGTTTTCGTCATCCTGTGTATTATTGCTGCAGGTGTGCTTCAAAACAATG 1561
QY 2026 TTGTAAACAATTTGAACCAATGGTATACAGATTGTGA 2061
Db 1562 TTGTAAACAATTTGAACCAATGGTATACAGATTGTGA 1597

RESULT 12

US-08-996-685-9
; Sequence 9, Application US/08996685
; Patent No. 6031153
; GENERAL INFORMATION:
; APPLICANT: Ryals, John
; APPLICANT: Friedrich, Leslie
; APPLICANT: Uknes, Scott
; APPLICANT: Molina, Antonio
; APPLICANT: Ruess, Wilhelm
; APPLICANT: Knauf-Beiter, Gertrude
; APPLICANT: Kung, Ruth
; APPLICANT: Kessmann, Helmut
; APPLICANT: Oostendorp, Michael
; TITLE OF INVENTION: METHOD FOR PROTECTING PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 6031153artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 6031153th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/996,685
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/761,543
; FILING DATE: 6-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,378
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,024
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/875,015
; FILING DATE: 16-JUL-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy

; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: PF/5-21215/P1/CGC1912
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (919) 541-8587
; TELEFAX: (919) 541-8689
; INFORMATION FOR SEQ ID NO: 9:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 1597 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: CDNA
; FEATURE:
; NAME/KEY: CDS
; LOCATION: 1..1410
; OTHER INFORMATION: /product= "Altered form of NIMI"
; OTHER INFORMATION: /note= "N-terminal deletion compared to wild-type NIMI"
; OTHER INFORMATION: sequence."
; US-08-996-685-9

Query Match 75.7%; Score 1592.8; DB 3; Length 1597;
Best Local Similarity 99.9%; Pred. No. 0;
Matches 1594; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
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Db 2 TGGATTTCGTTGTGACTGTTTGGCTTAATGTTTACAGCAGCAGAGTGAGACCGCGGCTA 61
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QY 826 TTGTTAAAGAGATAATTGATAGACGTAAGAGCGTTGGTTGGAGGTACCTTAAAGTAAGA 885
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RESULT 13

US-08-989-478-13

; Sequence 13, Application US/08989478

; Patent No. 5986082

; GENERAL INFORMATION:

; APPLICANT: Uknes, Scott

; APPLICANT: Hunt, Michelle

; APPLICANT: Steiner, Henry-York

; APPLICANT: Ryals, John

; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING

; TITLE OF INVENTION: DISEASE RESISTANCE IN PLANTS

; NUMBER OF SEQUENCES: 32

; CORRESPONDENCE ADDRESS:

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; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cordwallis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/989,478
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/033,177
; FILING DATE: 13-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: PF/5-21214/PI/GC1911
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (919) 541-8587
; TELEFAX: (919) 541-8689
; INFORMATION FOR SEQ ID NO: 13:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 1194 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: cDNA
; FEATURE:
; NAME/KEY: CDS
; LOCATION: 1..1194
; OTHER INFORMATION: /product= "Altered form of NIM1"
; OTHER INFORMATION: /note= "N-terminal/C-terminal chimera."
; US-08-989-478-13
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Best Local Similarity 99.9%; Pred. No. 0;
Matches 1189; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
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| Qy | 1126 | TACTATCTCTATTGGAAAAAGGTCAAGTGCATCAGAGCAACTTTGGAAGGTAGAACC | 1185 | |
| Db | 662 | TACTATCTCTATTGGAAAAAGGTCAAGTGCATCAGAGCAACTTTGGAAGGTAGAACC | 721 | |
| Qy | 1186 | CACATCATGATCGCAAAACAGCCATATGGCGGTTGAATGTAAATAATATCCCGGAGCAAT | 1245 | |
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| Qy | 1366 | CGCTGCTCGATCTTTGAAAATAGAGTTGCATTCGCTCAACGTCTTTTCCACGGAAGCAC | 1425 | |
| Db | 902 | CGCTGCTCGATCTTTGAAAATAGAGTTGCATTCGCTCAACGTCTTTTCCACGGAAGCAC | 961 | |
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; LOCATION: 1..786
; OTHER INFORMATION: /product= "Altered form of NIM1"
; OTHER INFORMATION: /note= "Ankyrin domains of NIM1."
US-08-989-478-15

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Matches 782; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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QY 699 TTGGTTATACTCAAGCTTGCTAATATATATGTGTTAAAGCTTGTATGAAGCTATTGGATAGA 758
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GenCore version 5.1.1.3
Copyright (c) 1993 - 2002 Compugen Ltd.

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Maximum Match 100%
Listing first 45 summaries

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8: em_htc:*
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12: gb_gss:*
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14: em_gss_inv:*
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16: em_gss_vrt:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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| 2 | 493 | 23.4 | 495 | 9 | AT997958 | AT997958 701671677 |
| 3 | 378.6 | 18.0 | 470 | 9 | AA395706 | AA395706 28108 Lam |
| 4 | 307.8 | 14.6 | 338 | 9 | AV557971 | AV557971 AV557971 |
| 5 | 305.2 | 14.5 | 772 | 12 | BH525927 | BH525927 BOGT004TF |
| 6 | 236 | 11.2 | 799 | 12 | BH602085 | BH602085 BOHK84TF |
| 7 | 231.2 | 11.0 | 258 | 10 | T22612 | T22612 4620 Lambda |
| 8 | 228.8 | 10.9 | 463 | 12 | BH211724 | BH211724 SALK_0065 |
| 9 | 212.8 | 10.1 | 613 | 9 | AW160235 | AW160235 EST290093 |
| 10 | 211.4 | 10.0 | 614 | 10 | BG464249 | BG464249 EMI_71_D1 |
| 11 | 187.8 | 8.9 | 700 | 10 | BM111027 | BM111027 EST558563 |
| 12 | 186.8 | 8.9 | 654 | 10 | BG124935 | BG124935 EST470581 |
| 13 | 172.2 | 8.2 | 785 | 12 | BH602094 | BH602094 BOHK84TR |
| 14 | 163.2 | 7.8 | 667 | 10 | BG598808 | BG598808 EST503708 |
| 15 | 160.6 | 7.6 | 455 | 10 | BE493178 | BE493178 WHE0570_C |
| 16 | 154.2 | 7.3 | 450 | 9 | AK399343 | AK399343 EST309843 |
| 17 | 152.8 | 7.3 | 744 | 10 | BG526766 | BG526766 63-52 Ste |

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| | 19 | 144 | 6.8 | 569 | 9 | AW745943 | AW745943 WSL_38_H0 |
| | 20 | 140.6 | 6.7 | 458 | 9 | BE023215 | BE023215 sm70a04.Y |
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| | 22 | 136.8 | 6.5 | 547 | 10 | BE918569 | BE918569 OVL_8_E08 |
| | 23 | 135.2 | 6.4 | 637 | 10 | BG521476 | BG521476 10-59 Ste |
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| c | 25 | 131.6 | 6.3 | 516 | 9 | AW622846 | AW622846 EST306916 |
| | 26 | 131 | 6.2 | 462 | 9 | AL372473 | AL372473 MTBA51C01 |
| | 27 | 128.6 | 6.1 | 835 | 12 | BH594302 | BH594302 BOHOK24TR |
| | 28 | 128.2 | 6.1 | 588 | 10 | BM307942 | BM307942 sak39h08. |
| | 29 | 124.2 | 5.9 | 503 | 10 | BE432768 | BE432768 EST39297 |
| | 30 | 115.6 | 5.5 | 430 | 9 | AL442277 | AL442277 sa66a04.Y |
| | 31 | 114 | 5.4 | 535 | 9 | AW687759 | AW687759 NF013805R |
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| | 37 | 105.6 | 5.0 | 562 | 10 | BE366196 | BE366196 P1L_31_F0 |
| | 38 | 105.4 | 5.0 | 805 | 10 | BG414779 | BG414779 HVSMEK000 |
| | 39 | 104.4 | 5.0 | 765 | 10 | BG526883 | BG526883 40-96 Ste |
| | 40 | 103 | 4.9 | 539 | 10 | BI210424 | BI210424 EST528464 |
| c | 41 | 102.6 | 4.9 | 645 | 9 | AW310982 | AW310982 sg31b02.x |
| | 42 | 101.8 | 4.8 | 612 | 9 | AI054662 | AI054662 coau0001K |
| | 43 | 96.4 | 4.6 | 430 | 10 | BI071038 | BI071038 CO51P30U |
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ALIGNMENTS

RESULT 1
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LOCUS AV551266 573 bp mRNA linear EST 06-SEP-2000
DEFINITION AV551266 Arabidopsis thaliana roots Columbia Arabidopsis thaliana
CDNA clone RZ123e05R 5', mRNA sequence.
AV551266
VERSION AV551266.1 GI:8722679
KEYWORDS EST.
SOURCE thale cress.
ORGANISM Arabidopsis thaliana

REFERENCE
AUTHORS Asamizu,E., Nakamura,Y., Sato,S. and Tabata,S.
TITLE A large scale analysis of cDNA in Arabidopsis thaliana: Generation of 12,028 non-redundant expressed sequence tags from normalized and size-selected cDNA libraries
JOURNAL DNA Res. 7, 175-180 (2000)
MEDLINE 20363093
COMMENT Contact: Erika Asamizu
The First Laboratory for Plant Gene Research
Kazusa DNA Research Institute
Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizukazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.

FEATURES
source
1. .573
/organism="Arabidopsis thaliana"
/strain="Columbia"
/db_xref="taxon:3702"
/clone="RZ123e05R"
/clone_lib="Arabidopsis thaliana roots Columbia"
/tissue_type="roots"
/note="Vector: pBluescriptII SK-; Site_1: EcoRI; Site_2: XhoI"

BASE COUNT 181 a 104 c 137 g 151 t
ORIGIN

Query Match 27.2%; Score 573; DB 9; Length 573;
Best Local Similarity 100.0%; Pred. No. 9.5e-99;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis. 1 (bases 1 to 470)

REFERENCE
AUTHORS Newman,T., deBruijn,F.J., Green,P., Keegstra,K., Kende,H., McIntosh,L., Ohlrogge,J., Raikhel,N., Somerville,S., Thomashow,M., Retzel,E. and Somerville,C.

TITLE Genes galore: a summary of methods for accessing results from large-scale partial sequencing of anonymous Arabidopsis cDNA clones Plant Physiol. 106, 1241-1255 (1994)

JOURNAL
MEDLINE
COMMENT 95148729

Contact: Thomas Newman
MSU-DOE Plant Research Laboratory
Michigan State University
MSU-DOE-PRL, Michigan State University, Plant Biology Bldg., E. Lansing, MI
Tel: 517-353-0854
Fax: 517-353-9168
Email: 22313tcn@lhm.cl.msu.edu
Seq primer: M13 -21 dye primer.

FEATURES
source Location/Qualifiers
1..470
/organism="Arabidopsis thaliana"
/strain="var columbia"
/db_xref="taxon:3702"
/clone="9905Xp"
/clone.lib="Lambda-PRL2"
/note="Vector: lambda Zip-Lox; Site_1: Sal; Site_2: Not; Lambda PRL2 is a cDNA library derived from equal quantities of 4 pools of mRNA. The mRNA sources were 1) 7 day germinated etiolated seedlings; 2) tissue culture grown roots; 3) staged plants half with 24 hour light cycle, half on 16 hr light, 8 hour dark- rosettes; 4) same plants as 3 but aerial tissue (stems, flowers and siliques. The vector is BRL's lambda Zip-Lox. The cDNA inserts were directionally cloned with Sal-Not arms using oligo dr primed cDNA. "

BASE COUNT 119 a 101 c 99 g 143 t 8 others
ORIGIN

Query Match 18.0%; Score 378.6; DB 9; Length 470;
Best Local Similarity 93.3%; Pred. No. 6.7e-62;

Matches 404; Conservative 0; Mismatches 28; Indels 1; Gaps 1;

QY 1655 TGAGGACTTGACTCAACTGGCTTCGGAGAGACGACACTGCTGAGAACGACTACAAAA 1714

DB 38 TGTGNGGCTTGCTCAACTGGCTTCGGAGAGGNCACCTGCTGGGAACCGNCTACCAA 97

QY 1715 GAAGCAAGGTACATGGAATACAGAGACACTAAAGAAGGCCCTTTAGTGAGGACAATTT 1774

DB 98 GGAAGCAAGGTCCATGGAATACAGAGNCACACTAAAGAAGGCCCTTTAGTGAGGACAATTT 157

QY 1775 GGAATTAGAATTCGTCCTGACAGATCGACTTCCTT-CCACATCGAAATCAACCGGTG 1833

DB 158 GGAATTAGAATTCGTCCTGACAGATTCGACTTCCTTCCACATCGAAATCAACCGGTG 217

QY 1834 GAAAGAGTCTAACCGTAAACTCTCTCATGTCGTCGAGACTTTGCGCTCTTAGTGT 1893

DB 218 GAAAGAGTCTAACCGTAAACTCTCTCATGTCGTCGAGACTTTGCGCTCTTAGTGT 277

QY 1894 AATTTTGTGTACCATATAAATTCGTGTTTTCATGATGACTGTAACCTGTTTATGTCTATCG 1953

DB 278 AATTTTGTGTACCATATAAATTCGTGTTTTCATGATGACTGTAACCTGTTTATGTCTATCG 337

QY 1954 TTGGCGTCATATAGTTTCGCTCTTCGTTTTCGATCCTGTGTATTATTCGTCAGGTGTC 2013

DB 338 TTGGCGTCACATAGTTTCGCTCTTCGTTTTCGATCCTGTGTATTATTCGTCAGGTGTC 397

QY 2014 TTCAACAAATGTTCTAACAATTTGAACCAATGGTATACAGATTTGTAATATATATTAT 2073

DB 398 TTCAACAAATGTTCTAACAATTTGAACCAATGGTATACAGATTTGTAATATATATTAT 457

QY 2074 GTACATCAACAAT 2086

|||||

DB 458 GTACATCAACAAT 470

RESULT 4

AV557971/c

LOCUS

DEFINITION

AV557971 Arabidopsis thaliana green siliques Columbia Arabidopsis

thaliana cDNA clone S0085f01f 3', mRNA sequence.

ACCESSION

AV557971

VERSION

AV557971.1

KEYWORDS

GI:8729386

SOURCE

thale cress.

ORGANISM

Arabidopsis thaliana

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;

Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

REFERENCE

1 (bases 1 to 338)

AUTHORS

Asamizu,E., Nakamura,Y., Sato,S. and Tabata,S.

TITLE

A large scale analysis of cDNA in Arabidopsis thaliana: Generation

of 12,028 non-redundant expressed sequence tags from normalized and

size-selected cDNA libraries

JOURNAL

DNA Res. 7, 175-180 (2000)

MEDLINE

20363093

COMMENT

Contact: Erika Asamizu

The First Laboratory for Plant Gene Research

Kazusa DNA Research Institute

Yana 1532-3, Kisarazu, Chiba 292-0812, Japan

Email: asamizukazusa.or.jp, URL: http://www.kazusa.or.jp/en/plant/.

FEATURES

Location/Qualifiers

1..338

source

/organism="Arabidopsis thaliana"

/strain="Columbia"

/db_xref="taxon:3702"

/clone="S0085f01f"

/clone.lib="Arabidopsis thaliana green siliques Columbia"

/tissue.type="green siliques"

/note="Vector: pBluescriptII SK-; Site_1: EcoRI; Site_2: XhoI"

BASE COUNT 121 a 65 c 66 g 86 t

ORIGIN

Query Match 14.6%; Score 307.8; DB 9; Length 338;

Best Local Similarity 99.4%; Pred. No. 1.8e-48;

Matches 309; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1778 ATTAGGAATTCGTCCTGACAGATTCGACTTCTTCCACATCGAAATCAACCGTGGAA 1837

DB 338 ATTAGGAATTCGTCCTGACAGATTCGCTTCTTCCACATCGAAATCAACCGTGGAA 279

QY 1838 GAGTCTAACCGTAAACTCTCTCATCGTCGTCGAGACTTGCCTCTTAGTGAATTT 1897

DB 278 GAGTCTAACCGTAAACTCTCTCATCGTCGTCGAGACTTGCCTCTTAGTGAATTT 219

QY 1898 TTTGCTGTACCATATAATTCGTTTTCATGATGACTGTAACCTGTTTATGCTATCGTTGG 1957

DB 218 TTTGCTGTACCATATAATTCGTTTTCATGATGACTGTAACCTGTTTATGCTATCGTTGG 159

QY 1958 CGTCATATAGTTGCGTCCTCGTTTTCGATCCTGTTGATTAATTCGTCGAGGTGTCCTCA 2017

DB 158 CGTCATATAGTTGCGTCCTCGTTTTCGATCCTGTTGATTAATTCGTCGAGGTGTCCTCA 99

QY 2018 AACAAATGTTGAACAAATTTGAACCAATGGTATACAGATTTGTAATATATATATATAT 2077

DB 98 AACAAATGTTGAACCAATTTGAACCAATGGTATACAGATTTGTAATATATATATATAT 39

QY 2078 ATCAACAATAA 2088

DB 38 ATCAACAATAA 28

RESULT 5

BH525927/c

LOCUS

BH525927

772 bp DNA linear GSS 13-DEC-2001

DEFINITION BOGT004TF BOGT Brassica oleracea genomic clone BOGT004, DNA sequence.
ACCESSION BH525927
VERSION BH525927.1 GI:17734012
KEYWORDS GSS.
SOURCE Brassica oleracea.
ORGANISM Brassica oleracea
REFERENCE Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Brassica.
1 (bases 1 to 772)
TOWN,C.D., Van Aken,S., Utterback,T. and Fraser,C.M.
TITLE Whole genome shotgun sequencing of Brassica oleracea
JOURNAL Unpublished (2001)
COMMENT Other_GSSs: BOGT004TR
Contact: Chris Town
TIGR
9712 Medical Center Drive, Rockville, MD 20850, USA.
Tel: 301-838-3523
Fax: 301-838-0208
Email: cdtown@tigr.org
DNA is from a doubled haploid provided by Tom Osborn.
Seq primer: TF
Class: Sheared ends.
FEATURES
source
1..772
/organism="Brassica oleracea"
/strain="TO1000DH3"
/db_xref="taxon:3712"
/clone="BOGT004"
/note="Vector: pHOS1; Site_1: BstXI; 2-3 kb sheared genomic DNA inserted into pHOS1 using BstXI linkers"
BASE COUNT 199 a 187 c 176 g 210 t
ORIGIN
Query Match 14.5%; Score 305.2; DB 12; Length 772;
Best Local Similarity 69.8%; Pred. No. 5e-48;
Matches 412; Conservative 0; Mismatches 178; Indels 0; Gaps 0;
QY 802 TTGAAAAGTCATTCGCGAAGAGCTTGTAAAGAGATAATTGATAGACGTAAGAGCTTG 861
DB 772 TCGACAAGTCTTTACCCCAAGACATCGTCAACAGAGTCCCGACATCCCGAAGAGCTCG 713
QY 862 GTTTGGAGGTCAATTAAGTAAAGAACATGCTCGAATTGACATATAAGGCACCTTGACTCGG 921
DB 712 GTCTCGAGCCCGCGAGCCGATAACATGCTCATGAACATATACAAGGCCCTTGACTCGG 653
QY 922 ATGATATTGAGTTAGTCAAGTTGCTTTTGAAGAGGATCACCAATCTAGATGCGGT 981
DB 652 ACGATGTTGAGCTGTGCAAGATGCTTTTGACAGAAGGACACAGAGTCTAGACGACGCT 593
QY 982 GTGCTCTTCAATTTTCGCTGTTGCAATATTGCAATGTGAAGCCGCAACAGATCTTTTAAAC 1041
DB 592 ACGTCTTCACTACGCTGTTGCAATTCGATTCGATGTGAAGCGGCTCTGATCTCATTTGACA 533
QY 1042 TTGATCTTGGCGATGTCAACATAGGAATCCGAGGGGATATACGGTCTTCATGTTGCTG 1101
DB 532 TCGAGCTCGCTGAGCTGGACCATAGAAACCCGAGGGGATACACGCGCTTCACGTTGCTG 473
QY 1102 CGATCGGAAGGAGCCACATTTGATCTATCTATTTGGAAGAGGTGCAAGTGCATCAG 1161
DB 472 CGATGCGCAACGAGCGAAGCTGATGTTTATTTATTTGACTAAAGGTGGGAATTCGCTCGG 413
QY 1162 AAGCAACTTTTGAAGGTAGAACCGCACTCATGATCGCAAAACAGGCACCTATGGCGGTTG 1221
DB 412 AGACGAGCTTTGAGGTAGAACCGCTCTGCGATTCGGAAGAGGCTCACTAAAGCTTCGG 353
QY 1222 AATGTANATATCCCGAGCAATGACGATCTCTCAAAAGCCGACATGTGTAGAAA 1281
DB 352 AGTAAATGCTAGTACGAGCAAGGAGGAGCTTCTCTGTAAGAGGAGGCTATGATAGAGG 293
QY 1282 TACTAGCAAGAGACAAACAGACAATTCCTAGAGATGTTCTCCCTCTTTTGCAG 1341

DB 292 TACTAGACATCGGTGTAAACTAGGTAGCTTGCCTAGAGATGAGTACTTCTTCTCAG 233
QY 1342 TGGCGCGCGATGAATTGAAGATGACGCTGCTCGATCTTTGAAAAATAGAGTT 1391
DB 232 CTACTCCTTGATGAATTGAGATGAGGCTGCTCTATCTTTGAAAACAGAGGT 183
RESULT 6
LOCUS BH602085
DEFINITION BOHB84TF BOHK Brassica oleracea genomic clone BOHB84, DNA sequence.
ACCESSION BH602085
VERSION BH602085.1 GI:17854531
KEYWORDS GSS.
SOURCE Brassica oleracea.
ORGANISM Brassica oleracea
REFERENCE Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Brassica.
1 (bases 1 to 799)
TOWN,C.D., Van Aken,S., Utterback,T. and Fraser,C.M.
TITLE Whole genome shotgun sequencing of Brassica oleracea
JOURNAL Unpublished (2001)
COMMENT Other_GSSs: BOHB84TR
Contact: Chris Town
TIGR
9712 Medical Center Drive, Rockville, MD 20850, USA.
Tel: 301-838-3523
Fax: 301-838-0208
Email: cdtown@tigr.org
DNA is from a doubled haploid provided by Tom Osborn.
Seq primer: TF
Class: Sheared ends.
FEATURES
source
1..799
/organism="Brassica oleracea"
/strain="TO1000DH3"
/db_xref="taxon:3712"
/clone="BOHB84"
/clone_lib="BOHK"
/note="Vector: pHOS1; Site_1: BstXI; 2-3 kb sheared genomic DNA inserted into pHOS1 using BstXI linkers"
BASE COUNT 251 a 164 c 165 g 219 t
ORIGIN
Query Match 11.2%; Score 236; DB 12; Length 799;
Best Local Similarity 75.6%; Pred. No. 6.4e-35;
Matches 360; Conservative 0; Mismatches 105; Indels 11; Gaps 5;
QY 1591 CCGTGGAACTCGGAAAGGATTTT-CGCGGCTGTTCCGAGTGTCTGCACGAGATTATG 1649
DB 761 CAGTGAATTCCGGAACGCTTCTTCCCACGCTGTTCCAAAGTCTCGATGATATTGTG 702
QY 1650 AACTGTGAGGACTTGACTCACTGCTTCCGAGAGAGACACTGCTGAGAAGCAGCTA 1709
DB 701 GACTGTGAGGACTTGACTATCTGCTCTCTAGAGAAGACACTCTCTGAGCAACGACAA 642
QY 1710 CAAAAGAGCAAGGTACATGGAATACAAGACACTAAAGAGGCGCTTTAGTGAGGAC 1769
DB 641 CAAAAGAGCAGAGGTTTCATGGAATACAGAGATGTTCAATGCGGCTTTAGTAAGAC 582
QY 1770 AATTTTGGAAATAGGAATTCGTCCTCGACAGATTCGACTTCTTCCACATCGAATCAAC 1829
DB 581 AAGGAGGATCTTGGAAAGTCGTCCTCTCTCAGCTTCTCTTCTCCACATCCAAATTAAC 522
QY 1830 GGTGGAAGAGGCTTAACCGTAAACTCTCTCATCTGCTCGTGAGACTCTTGCCCTCTTA 1889
DB 521 GGTAAAAAGAGGCTATTGCTAAACCCCTCTACCGGCGCTCGGTGACATATTGTTTC--G 464
QY 1890 GTGTAATTTTCTCTGACCATATAATTTCTGTTT---TCATGATGACTGTAATGTTTATG 1946

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Db 463 GGGAATATTTGATGTACCAATATATATATTTGAGTTATCATGTGCTTAGTGTCCTG 404
QY 1947 TCTATCGTTGGC---GTCATATAGTTTCGCTCTTCGTTTTTGATCGTGTGTAATT--ATTG 2001
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 403 TCTATTGTTGGCTCAGTCATATATAGTTTTCGTCATTTTGGCATCGTGTATTCGGCAG 344
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 2002 CTCGAGGTGCTTCAAAAGATGTTGTAAACAAATTTGAACCAATGATATACAGATT 2057
|| ||||| || ||||| || ||||| || ||||| || ||||| || ||||| || |||||
Db 343 CTTTCGGTGTGTTGAAGCAATGCTGTAAACCTTTTGAATCTGTGATATATCTATT 288
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

RESULT 7
T22612 22612 258 bp mRNA linear EST 06-NOV-1997
LOCUS 4620 Lambda-PRL2 Arabidopsis thaliana cDNA clone 990577, mRNA
DEFINITION
ACCESSION T22612
VERSION T22612.1 GI:2597193
KEYWORDS EST.
SOURCE thale cress.
ORGANISM Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
1 (bases 1 to 258)
REFERENCE Newman,T., deBruijn,F.J., Green,P., Keegstra,K., Kende,H., McIntosh
AUTHORS L., Ohlroge,J., Raikhel,N., Somerville,S., Thomashow,M., Retzel
,E. and Somerville,C.
TITLE Genes galore: a summary of methods for accessing results from
JOURNAL large-scale partial sequencing of anonymous Arabidopsis cDNA clones
MEDLINE Plant Physiol. 106, 1241-1255 (1994)
COMMENT 95148729
On Nov 6, 1997 this sequence version replaced gi:932513.
Contact: Thomas Newman
MSU-DOE Plant Research Laboratory
Michigan State University
MSU-DOE-PRL, Michigan State University, Plant Biology Bldg., E.
Lansing, MI
Tel: 517-353-0854
Fax: 517-353-9168
Email: 22313tcln@bm.cl.msu.edu
Seq primer: T7 dye primer.
FEATURES
source
1..258
Location/Qualifiers
/organism="Arabidopsis thaliana"
/strain="var columbia"
/db_xref="taxon:3702"
/clone="990577"
/clone_lib="Lambda-PRL2"
/note="Vector: lambda Zip-Lox; Site_1: Sal; Site_2: Not;
Lambda PRL2 is a cDNA library derived from equal
quantities of 4 pools of mRNA. The mRNA sources were 1) 7
day germinated etiolated seedlings; 2) tissue culture
grown roots; 3) staged plants half with 24 hour light
cycle, half on 16 hr light, 8 hour dark- rosettes; 4)
same plants as 3 but aerial tissue (stems, flowers and
siliques. The vector is BRL's lambda Zip-Lox. The cDNA
inserts were directionally cloned with Sal-Not arms using
ligato dt primed cDNA."
BASE COUNT 69 a 49 c 59 g 71 t 10 others
ORIGIN
Query Match 11.0%; Score 231.2; DB 10; Length 258;
Best Local Similarity 94.6%; Pred. No. 6.2e-34;
Matches 244; Conservative 0; Mismatches 13; Indels 1; Gaps 1;

QY 943 TGCCTTTTGAAGAGGATCACCAATCTAGATGATCGGTGCTCTTCATTTTCGCTGTG 1002
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 TGCCTTTTGAAGAGGATCACCAATCTAGATGATCGGTGCTCTTCATTTTCGCTGTG 60
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1003 CATATTGCAATGTGAAGACCGCAACAGATCTTTTAAACATTGATCTTCCGCGATGCAACC 1062
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 61 CATATTGCAATGTGAAGACCGCAACAGATCTTTTAAACATTGATCTTCCGCGATGCAACC 120
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QY 1063 ATAGGAATCCGAGGGGATATACGGTCTTCATGTTGCTGCATGCGGAAGAGGCCACAAT 1122
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Db 121 ATAGGGATCCGNGGGGATATACGGTGTTCATGTTGCTTCGATNCGGNAGNGGCCACAAT 180
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1123 TGATACTACTCTCTATTGGAAGGATGCAAG-TGCATCAGAAGCAACTTTTCGAAGGTAGA 1181
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 181 TTATCTACTCTCTATTGGAAGGATGCAAGTTGCATCAGAAGCAACTTTTGAAGGTAGA 240
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1182 ACCGCACCTCATGATGCA 1199
||||| ||||| ||||| |||||
Db 241 ACCGNACTNATGTCGCA 258
||||| ||||| ||||| |||||

RESULT 8
BH211724/c 463 bp DNA linear GSS 24-OCT-2001
LOCUS SALK_006564 Arabidopsis thaliana TDNA insertion lines Arabidopsis
DEFINITION thaliana genomic clone SALK_006564, DNA sequence.
ACCESSION BH211724
VERSION BH211724.1 GI:16392337
KEYWORDS GSS.
SOURCE thale cress.
ORGANISM Arabidopsis thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
1 (bases 1 to 463)
REFERENCE Alonso,J.M., Leisse,T.J., Barajas,P., Chen,H., Cheuk,R., Gadrinab
AUTHORS ,C., Heller,C., Kim,C.J., Jeske,A., Koesema,E., Meyers,M.C., Parker
,H., Prednis,L., Shinn,P., Stevenson,D.K., Zimmerman,J. and Ecker
,J.R.
TITLE A Sequence-Indexed Library of Insertion Mutations in the
JOURNAL Arabidopsis Genome
COMMENT Unpublished (2001)
Contact: Joseph R. Ecker
Salk Institute Genomic Analysis Laboratory (SIGnAL)
The Salk Institute for Biological Studies
10010 N. Torrey Pines Road, La Jolla, CA 92037, USA
Tel: 858 453 4100 x1752
Fax: 858 558 6379
Email: ecker@salk.edu
This is single pass sequence recovered from the left border of
TDNA. This sequence lies within an intron of At4g26120.
Class: TDNA tagged.
FEATURES
source
1..463
Location/Qualifiers
/organism="Arabidopsis thaliana"
/strain="Columbia 0"
/db_xref="taxon:3702"
/clone="SALK_006564"
/clone_lib="Arabidopsis thaliana TDNA insertion lines"
/note="PCR was performed on Arabidopsis thaliana lines
each of which contains one or more TDNA insertion
elements. The resultant fragment for each line was
directly sequenced to determine the genomic sequence at
the site of insertion. Details of the protocols used can
be found at http://signal.salk.edu/tdna_protocols.html"
BASE COUNT 132 a 116 c 88 g 127 t
ORIGIN
Query Match 10.9%; Score 228.8; DB 12; Length 463;
Best Local Similarity 72.2%; Pred. No. 1.6e-33;
Matches 312; Conservative 0; Mismatches 117; Indels 3; Gaps 1;

QY 972 GATGATGGCTGTGCTCTTCATTTTCGCTTCATATTCGAATGGAAGACCGCAACAGAT 1031
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 463 GATGAGGCGTATGCTCTTCATTTTTCGCTATCGCTGCTGTAAGACCGCGCTATGAT 404
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1032 CTTTAAACATTGATCTTTCGCGATGTCAACCATAGGATCCGAGGGGATATACGGTCTT 1091
|| || || || || || || || || || || || || || || || || || || || || ||
Db 403 CTCCTCGAGCTTGAGCTTGGCGATGTTAACTTAGAAATCCGAGGGGATACACTGTGCTT 344
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QY 1092 CATGTTGCTGGATCGGAAGAGCCACAATTGATACCTATCTATTGGAAAAAGGTGCA 1151
Db 343 CATGTTGCTGGATCGGAAGAGCCGAAGTTGATAATATCTTTGTAATGAAGGGCA 284
QY 1152 AGTCATCAGAAAGCAACTTTTGAAGGTAGAACCCGACTCATGATCGCAAAACAAGCCACT 1211
Db 283 AATATTTTAGACACAACAATTTGGATGGTAGAACCCGCTTTAGTGATTGTAACAGGACTCACT 224
QY 1212 ATGGCGGTTGAATGTAATAATATCCGAGCAANTGCCAGCAATTCCTCAAGGCCGACTA 1271
Db 223 AAGCGGATGACTACAAAACCTAGTAGCGGAGGACGGTAGCCCTTCTCGAAAGCGGATTA 164
QY 1272 TGTGTAGAAATAGTAGACAAGACAACGAGAAACAAT---TCCTAGAGATGTTTCT 1328
Db 163 TGCATAGAGGTACTTGACATGAACAAAACCTAGATATTTGTCGCCTATAGAGGCTTCA 104
QY 1329 CCCTCTTTTCAGTGGCGGCGCATGAATTGAAGATGACGCTGCGATCTTGAATAATAGA 1388
Db 103 CTTTCTCTTCAGTAACCTCCAGAGGAGTTGAGATGAGGTTGCTCTATTATGAAAAACCGA 44
QY 1389 GTTGCACTTGCT 1400
Db 43 GGTATGCTTTCT 32

RESULT 9
LOCUS AW160235 613 bp mRNA linear EST 18-MAY-2001
DEFINITION EST290093 L. pennellii trichome, Cornell University Lycopersicon
pennellii cDNA clone cLPT119 similar to A. thaliana transcription
factor inhibitor I kappa B homolog, mRNA sequence.
ACCESSION AW160235
VERSION AW160235.1 GI:6279769
KEYWORDS EST.
SOURCE Lycopersicon pennellii.
ORGANISM Lycopersicon pennellii.
REFERENCE 1 (bases 1 to 613)
AUTHORS Alcalá,J., Vrebalov,J., White,R., Matern,A.L., Lakey,J., Holt,I.E.,
Liang,F., Hansen,T.S., Updon,J., Ronning,C.M., Craven,M.B., Fujii
,C.Y., Bowman,C.L., Nierman,W., Fraser,C.M., Venter,J.C., Martin
,G.B., Tanksley,S.D. and Giovannoni,J.
TITLE Generation of ESTs from wild tomato (Lycopersicon pennellii)
trichomes
JOURNAL Unpublished (1999)
COMMENT Contact: CUGI
Clemson University Genomics Institute
100 Jordan Hall, Clemson, SC 29634, USA
Email: http://www.genome.clemson.edu/orders/index.html
3 prime sequence.
FEATURES
source Location/Qualifiers
1..613
/db_xref="taxon:28526"
/clone="cLPT119"
/clone_lib="L. pennellii trichome, Cornell University"
/tissue_type="trichome"
/dev_stage="mixed stages"
/lab_host="SOLR"
/note="Vector: pBluescript SK-; Site 1: EcoRI; Site 2:
XhoI; Leaves of various stages were shaken in liquid
nitrogen, shearing off trichomes. This procedure yielded a
mixture of cells highly enriched for trichomes, with minor
contamination by other types of leaf cells."
BASE COUNT 159 a 148 c 107 g 199 t
ORIGIN
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Matches 341; Conservative 0; Mismatches 192; Indels 3; Gaps 1;
QY 1287 GACCAAGACACAAACGAGACAAATTCCTAGAGATGTTCTCCCTCTTTTCAGTGGCG 1346
Db 612 GAGCAAGCAGAAAGAGAGATCCACTACTAGGAAGAGCTTCATTAATCTCTTCTATGGCA 553
QY 1347 GCCGATGAATTAAGATGACGCTGCTCGATCTTTGAAATAGAGTTGCACCTTCTCAACCT 1406
Db 552 GCGATGATTTGGTATGAAGCTGTTATACCTTGAAATAGAGTTGGTCTGGCTAAACTC 493
QY 1407 CTTTTTCCAAAGGACACAAAGCTGCAATGGAGATCCGCGAAATGAAGGAACATGTGAG 1466
Db 492 CTTTTTCCCATGGAAGCAAAAGTTGCAATGGACATTTGCTCAAGTTGATGGCACGCTGAA 433
QY 1467 TTCATAGTAGACCTCGAGCCTGACCGCTCTACCTGTTACGGAAGAGACATCACCGGCT 1526
Db 432 TTACCCCTGGCTAGCAT---GAGGAAGAAGATAGCTGTGCACAGAGGACAAACAGTGAT 376
QY 1527 GTAAAGATAGCACCTTTTCAGAAATCCTTAGAAGAGCATCAAAGTAGACTAAAAGCGCTTTCT 1586
Db 375 TTGAACGAGGCTCCTTTCAAGATGAAAGAGGAGCAGCTTGAATCGGCTTAGGCTCTCTCT 316
QY 1587 AAAACCGTGAAGCTCGGAAACGATTTCTCCCGCGCTGTTCCGCACTGCTCCACAGATT 1646
Db 315 AGAAGCTGTCGAACCTTGGAACCGGTTCTTTCCACGTTGTTCAAGAGTTCTAAATAGATC 256
QY 1647 ATCAACTGTGAGGACTTGACTCAACTGCGCTTGGCGGAAGAGACACACTGCTGAGAAACGA 1706
Db 255 ATGATGCTGTATGACATATCTGTAGATAGCTTACATGGGAANTGATACATAGAAGCGT 196
QY 1707 CTACAAAAGCAAGCAAGGTACATGGAATACAGAGACACTAAAGAGCGCTTTTAGTGAG 1766
Db 195 CAAGTGAAGAAGCAAGGTACATGGAACCTTCAAGAAATTTTGCTCAAGCAATTCACGGAG 136
QY 1767 GACAATTTGGAATTAGAAATTCGTCCTCCCTGACAGATTCGACTTCTTCCACATCGAA 1822
Db 135 GATAAAGAAGAAATTTGCTAAGACTAACTATCTCTCTATCTGTTCTCTATCATCTAA 80

RESULT 10
LOCUS BG464249 614 bp mRNA linear EST 20-MAR-2001
DEFINITION EML_7L_D12.bl_A002 Embryo 1 (EM1) Sorghum bicolor cDNA, mRNA
sequence.
ACCESSION BG464249
VERSION BG464249.1 GI:13392562
KEYWORDS EST.
SOURCE sorghum.
ORGANISM Sorghum bicolor
REFERENCE Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC
clade; Panicoideae; Andropogoneae; Sorghum.
AUTHORS Reid,S.P., Cordonnier-Pratt,M.-M., Gingle,A. and Pratt,L.H.
TITLE An EST database from Sorghum: developing embryos
JOURNAL Unpublished (2000)
COMMENT Contact: Cordonnier-Pratt MM
Department of Botany
The University of Georgia
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271, USA
Tel: 706 542 1860
Fax: 706 542 1805
Email: mmpratt@uga.edu
Sequences have been trimmed to exclude POLYA, vector and regions
below Phred quality 16. The threshold for highest quality sequence
is 20.
Seq primer: JEN REV
High quality sequence stop: 610
POLYA=No.
FEATURES
source Location/Qualifiers
1..614
/organism="Sorghum bicolor"
/db_xref="taxon:4558"
```

```
/clone_lib="Embryo 1 (EM1)"
/notes="Organ: Embryos germinated for 24 hr; Vector:
pBluescript II from Lambda Zap II; Site_1: XhoI; Site_2:
EcoRI; The library was made from poly-A RNA in the cloning
vector lambda Zap II. Clones to be sequenced were
prepared by mass excision."
BASE COUNT      188 a   125 c   146 g   155 t
ORIGIN

Query Match      10.0%; Score 211.4; DB 10; Length 614;
Best Local Similarity 60.8%; Pred. No. 3.le-30;
Matches 369; Conservative 0; Mismatches 226; Indels 12; Gaps 1;

QY 804 GAAAGTCAATTCGCCGAAGAGCTTCTTAAAGAGATAATTGATAGACGFAAAGAGCTTGTT 863
   || || || || || || || || || || || || || || || || || || || || || ||
Db 8 GAGAGGCATTGCCCTCCAGATGTTGTCARAGCAATTTGTGATGCAAGGCTAAGTCTTGGA 67

QY 864 TTGGAGGTACCTAAAGTAAAG-----AAACATGCTCGAATGTATACATAAGGCA 911
   || || || || || || || || || || || || || || || || || || || || || ||
Db 68 TTAGTTTTACCAGAGGACAAGGGCTTCCTAAACATACATGTAAGAAGAGTACACAGGGCG 127

QY 912 CTGACTCGGATGATATGATGTAGTCTCAAGTTGCTTTTGAAGAGGATCACACCAATCTA 971
   || || || || || || || || || || || || || || || || || || || || || ||
Db 128 CTGGATTCTGATGTAGAGCTAGTCCGAATGCTTACTCAAGGAGGAAAACTAATCTC 187

QY 972 GATGATGCGTGTCTTCAATTCGCTGTGTCATATTGCAATGTGAAGACCGCAACAGAT 1031
   || || || || || || || || || || || || || || || || || || || || || ||
Db 188 GATGATGCATATGCGTTACACTATGCTGTGCAACATTCGGACTCANAGATCACACAGAA 247

QY 1032 CTTTTAAACTTTGATCTTTCGGATGTCACCATAGGAATCCGAGGGGATATACGGTGTCT 1091
   || || || || || || || || || || || || || || || || || || || || || ||
Db 248 CTTCTGGATCTCGCACTTGCAGATGTTAATCATAGGAACCCCAAGAGGCTATACGGTTCT 307

QY 1092 CATGTTGTCGATCGGGAAGAGGCCACAATTGATGACTATCTCTATTGGAAAAAGGTGCA 1151
   || || || || || || || || || || || || || || || || || || || || || ||
Db 308 CACATGTGCTGTATGAGAAGGGAACCTAAAATCATTTGCTCTCTTTTGACCAAGGGAGCT 367

QY 1152 AGTGATCAGAAAGCAACTTTTGAAGGTAGAACCGCACTCATGTCGCAAAACAGCCACT 1211
   || || || || || || || || || || || || || || || || || || || || || ||
Db 368 CGCGCGTCAGATCTCACATTTGATCAGAAAAGCAGTACAGATCTCTAAACGACTTACA 427

QY 1212 ATGGCGGTTGAATTAATAATATCCGGAGCAATGCAAGCAATCTCTCAAAAGGCGGACTA 1271
   || || || || || || || || || || || || || || || || || || || || || ||
Db 428 AATCATGGGATTACTTTGGGCGCTACTGAGGATGGAAGCGCTTCTCCFAAAGATAGATTA 487

QY 1272 TGTGTAGAAATFACTAGACCAAGAACACACAGAGCAAAATTCCTAGAGATGTTCTCTCCC 1331
   || || || || || || || || || || || || || || || || || || || || || ||
Db 488 TGTATGTAGATACTAGCAAGCTGAAAGAAAGGGACCCACATCTTGGAGAAGCATCAGTT 547

QY 1332 TCTTTTGCAGTGGCGGCGCATGAATTTGAAGATGACGCTGCTCGATCTTTGAAAATAGAGTT 1391
   || || || || || || || || || || || || || || || || || || || || || ||
Db 548 TCTCTGCNATAGAGGAGACTCTCGCGGTGGAAGGTTGCTCTACCTTGAANACCGAGTT 607

QY 1392 GCACATG 1398
   || || || || || || || || || || || || || || || || || || || || || ||
Db 608 GCTTTAG 614

RESULT 11
BM111027
LOCUS
DEFINITION EST558563 potato roots Solanum tuberosum cDNA clone cPRO10C3 5' end
, mRNA sequence.
ACCESSION BM111027
VERSION BM111027.1 GI:17073236
KEYWORDS EST.
SOURCE potato.
ORGANISM Solanum tuberosum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum.
1 (bases 1 to 700)
REFERENCE van der Hoeven,R., Sun,H., Karamycheva,S.A., Tsai,J., Van Aken,S.,
```

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Utterback,T., Chiemingo,A., Bougri,O., Buell,C.R., Ronning,C.,
Tanksley,S. and Baker,B.
Generation of ESTs from potato roots
Unpublished (2001)
Contact: Research Genetics, Libraries Division
Tel: 1-800-711-6195
Email: cdna@resgen.com
For clone info: please contact Research Genetics, Libraries
Division tel 1-800-711-6195, email cdna@resgen.com
Seq primer: T3.
FEATURES
Location/Qualifiers
source
1..700
/organism="Solanum tuberosum"
/cultivar="Kennebec"
/db_xref="taxon:4113"
/clone="cPRO10C3"
/clone_lib="potato roots"
/tissue_type="roots"
/dev_stage="in vitro grown stem cuttings"
/lab_host="SOLR"
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
XhoI; supplier: Cornell University, Tanksley lab;
sequencing: The Institute for Genomic Research. Roots were
isolated from in vitro grown stem cuttings on CM medium.
Roots were isolated two weeks after placing the stem
cuttings from in vitro grown plants on medium."
BASE COUNT      195 a   132 c   179 g   194 t
ORIGIN

Query Match      8.9%; Score 187.8; DB 10; Length 700;
Best Local Similarity 60.8%; Pred. No. 8.9e-26;
Matches 306; Conservative 0; Mismatches 197; Indels 0; Gaps 0;

QY 901 TACATAAGGCATCTGATCGGATGATATGAGTTAGTCAAGTTGCTTTTGAAGAGATC 960
   || || || || || || || || || || || || || || || || || || || || || ||
Db 186 TATACAAGGCATGGATTTCAGATGATGTTCAACTTGTCAAGCTTCTACTTAATGAGTCTG 245

QY 961 ACACCAATCTAGATGCGGTGCTCTTCATTTCCGCTGTTCATATTGCAATGTGAAGA 1020
   || || || || || || || || || || || || || || || || || || || || || ||
Db 246 ACATAAGTTTAGATGGAGCGCTACGCTCTTCATTTACGCTGTTGCATATTGTGACCCCAAGG 305

QY 1021 CCGCAACAGATCTTTTAAAACTTGATCTTCCGATGTCAACCATAGGAATCCGAGGGGAT 1080
   || || || || || || || || || || || || || || || || || || || || || ||
Db 306 TTGTTACTGAGGTCTTTGGACTGGGTGCTGCTAATGTCACCTTCGGAATACACGTGTT 365

QY 1081 ATACGGTCTTCATGTTGCGATCGGAAGGAGCCACAATTTGATACTATCTCTATTGG 1140
   || || || || || || || || || || || || || || || || || || || || || ||
Db 366 ACATGTGCTTCATATGCTGCCATGCGTAAGGAACCCCTCAATCATTTGTATCATCTTTGA 425

QY 1141 AAAAAGGTCAAGTGCATCAGAACCACTTTGGAAAGTAGAACCGCACATCATCGCAA 1200
   || || || || || || || || || || || || || || || || || || || || || ||
Db 426 CTAAGGAGGCTCATGCATCAGAAATTAATGATGGAGGAGAGTGTCTGTTGGCATCTGTA 485

QY 1201 AACAAAGCACTATGGCGGTTGAATGTAATATATCCCGGAGCAATCAAGCATCTCTCTCA 1260
   || || || || || || || || || || || || || || || || || || || || || ||
Db 486 GGAGGCTGAGTAGGCCTAAGSAGTACCATGCAAAAACAGAAACAGGCCAGAGCAACA 545

QY 1261 AAGCCGCACTATGTGTAGAAATTAAGCAAGCAAGAAACAGAGCAACAATTCCTAGAG 1320
   || || || || || || || || || || || || || || || || || || || || || ||
Db 546 AAGATCGGATGATGTTATGATGTTTGGAGAGAGAGATGCGTCAACACCAATGACCGGAG 605

QY 1321 ATGTTCTCCCTCTTTTGGAGTGGCGCCGCAATTAAGATGACGCTGCTCGATCTTG 1380
   || || || || || || || || || || || || || || || || || || || || || ||
Db 606 ATGCAATATTTTCTTCCCCCATGTTGGCCGATGATCTGCCCATGAAACTGCTCTACCTGG 665

QY 1381 AAAATAGATTGCACCTTGCTCAA 1403
   || || || || || || || || || || || || || || || || || || || || || ||
Db 666 AAAACAGATGGCATTTGCACGA 688

RESULT 12
BG124935
LOCUS
BG124935 654 bp mRNA linear EST 31-JAN-2001
```

DEFINITION EST470581 tomato shoot/meristem Lycopersicon esculentum cDNA clone
ctOF7K1 5' sequence, mRNA sequence.

ACCESSION BG124935
VERSION BG124935.1 GI:12625123

KEYWORDS EST.
SOURCE tomato.

ORGANISM Lycopersicon esculentum

REFERENCE Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum;
Lycopersicon.

1 (bases 1 to 654)

AUTHORS van der Hoeven,R., Bezzerides,J., Sun,H., Cho,J., Utterback,T.,
Hansen,C., Ronning,C. and Tanksley,S.

TITLE Generation of ESTs from tomato shoot/meristem tissue

JOURNAL Unpublished (2001)

COMMENT Contact: CUGI

Clemson University Genomics Institute

Clemson University

100 Jordan Hall, Clemson, SC 29634, USA

Email: <http://www.genome.clemson.edu/orders/index.html>.

FEATURES Location/Qualifiers

source

1..654

/organism="Lycopersicon esculentum"

/cultivar="TA496"

/db_xref="taxon:4081"

/clone="ctOF7K1"

/clone_lib="tomato shoot/meristem"

/tissue_type="shoot/meristem"

/dev_stage="developing shoots from 4-6wks old plants"

/lab_host="SOLR"

/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:

XhoI; Small expanding leaves from the growing tip were

taken from greenhouse plants (4-6wks old TA496). Tissue

was immediately frozen in liquid nitrogen."

BASE COUNT 218 a 110 c 145 g 181 t

ORIGIN

Query Match 8.9%; Score 186.8; DB 10; Length 654;
Best Local Similarity 63.8%; Pred. No. 1.4e-25;
Matches 300; Conservative 0; Mismatches 167; Indels 3; Gaps 1;

QY 1353 GAATTTGAAGATGACGCTGCGATCTTTGAAATAGAGTTGCACCTTGCTCAACGCTCTTTT 1412

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 2 GATTTCGGTATGAAGCTGTTTACCTTGAAATAGAGTTGCTCTGGCTAAACTCCCTTTT 61

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 1413 CCACGGNAGCACAACTGCAATGGAGATCGCCGAATGAAGGAACATGTGAGTTTCA 1472

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 62 CCCATGGAAGCAAAAGTTGCAATGGACATTCACAAAGTTGATGGCAGTCTGAATTACCC 121

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 1473 GTGACTAGCCCTCGAGCCTGACCGTCTCACCTGGTACGAAGAGAACATCACCGGCTGTAAG 1532

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 122 CTGGCTAGCAT--GAGGAAGAAGATAGCTGATGCGACAGAGGACACAGTGGATTTGAAC 178

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 1533 ATAGCACTTTTCAAGATCTTAGAAGAGCATCAAAGTAGACTAAAGCGCTTCTTAAACC 1592

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 179 GAGGCTCCTTTCAAGATGAAGAGGAGCAGCTTGAATCGGCTTAGGGCTCTCTCTAGAACT 238

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 1593 GTGAACTCGGGAACAACTTCTCCCGCTGTTCGGCAGTGTGCGACAGAGATATGAAC 1652

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 239 GTGAACCTTGGAAACGGTCTTTCCACGTTGTTTCAGAACTTCTAATAAGAGTCATGGAT 298

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 1653 TGTGAGGACTTGACTCAACTGGCTTGGGAGAAACACACACTGCTGAGAACCAGCTACAA 1712

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 299 GCTGATGACTGTCTGAGATAGCTTACATGGGNACGATACAGTAGAGAGCGTCAACTG 358

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 1713 AAGAAGCAAGGTACATGGAAATACAAAGAGACACTAAAGAAGCGCTTTAGTGAGGACAAT 1772

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 359 AAGAAGCAAGGTACATGGAACTTCAAGAAATTTTGCTAAAGCAATTCACGGAGGATAAA 418

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 1773 TTGGAATTAGGAATTCGTCCTCGACAGATTCGACTTCTTCCACATCGAA 1822

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 419 GAAGAAATTTGCTAAGACTAAACATGTCTCCTCATCTTGTTCCTCTACATCTAA 468

RESULT 13
BH602094

LOCUS

DEFINITION

ACCESSION

VERSION

KEYWORDS

SOURCE

ORGANISM

REFERENCE

AUTHORS

TITLE

JOURNAL

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BH602094 785 bp DNA linear GSS 15-DEC-2001
BOHKB84TR BOHK Brassica oleracea genomic clone BOHKB84, DNA
sequence.

BH602094

VERSION

KEYWORDS

SOURCE

ORGANISM

REFERENCE

AUTHORS

TITLE

JOURNAL

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BASE COUNT 217 a 133 c 183 g 252 t

ORIGIN

Query Match 8.2%; Score 172.2; DB 12; Length 785;

Best Local Similarity 74.7%; Pred. No. 7.9e-23;

Matches 216; Conservative 0; Mismatches 73; Indels 0; Gaps 0;

QY 621 TTCAAGATCCCTGAATTAATTACTCTATCAGAGCAGCTTATTGAGCTTGTGACACAA 680

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 486 TTTTATTAACTCTGTCTATTGTCATTTTTCAGAGGCAATTTACTGGATGTTGTAGACAA 545

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 681 GTTGTATTAGAGACACACATTTGGTTTACTCAAGCTTGTCTTAATATATGTTGAAGCTTGT 740

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 546 GTTATGATAGAGACACATTTGGTCGTCCTCAAGCTTGTCTCAAGCTTGTGTAACATCTCGGTAACGCTGC 605

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 741 ATGAAGCTATTGGATAGATGTAAGAGATTTATTGTCAGCTTAATGTAAGATGTTAGT 800

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 606 AAGAAGCTATTGTAAGTGAAGTGCAGAGAGATCATTTGTCAGCTCTAACGCTGATGTTGTTACT 665

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 801 CTTGAAAAGCTATTGCCGGAAGAGCTTTGTTAAAGAGATAATTGATAGAGCTTAAGAGCTT 860

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 666 CTTAAAGAGCTATTGCTCGTAGGACATTTGCCAAGCAAGTAATCGATATCCGCAAGAGCTC 725

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

QY 861 GCTTTGGAGGTACCTTAAAGTAAAGAAACATGCTCGAATGTACATAAGG 909

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

Db 726 GCTTGGAGGTAGCTGAACACAGAGAAACATGCTCTCCACATACACAAGG 774

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

RESULT 14

BG598808

LOCUS

DEFINITION

ACCESSION

VERSION

BG598808 667 bp mRNA linear EST 12-APR-2001
EST503708 cSTS Solanum tuberosum cDNA clone cSTS22E2 5' sequence,
mRNA sequence.

BG598808

ACCESSION

VERSION

BG598808.1 GI:13618649

| | |
|-----------|---|
| KEYWORDS | EST. |
| SOURCE | potato. |
| ORGANISM | Solanum tuberosum |
| | Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Solanales; Solanaceae; Solanum. |
| REFERENCE | 1 (bases 1 to 667) |
| AUTHORS | van der Hoeven,R., Bezzerides,J., Sun,H., Cho,J., Chiemingo,A., Bougri,O., Buell,C.R., Ronning,C., Tanksley,S. and Baker,B. |
| TITLE | Generations of ESTs from sprouting potato eyes |
| JOURNAL. | Unpublished (2000) |
| COMMENT | Contact: Cathy Ronning The Institute for Genomic Research For clone info: please contact Research Genetics, Libraries Division tel 1-800-711-6195, email cdna@resgen.com Seq primer: M13F-R. |

```

FEATURES
source
1. .667
Location/Qualifiers
/organism="Solanum tuberosum"
/cultivar="Kennebec"
/db_xref="taxon:4113"
/clone="cSTS22E2"
/clone_lib="cSTS"
/tissue_type="sprouting eyes from tubers"
/dev_stage="12-14 weeks post harvest"
/lab_host="SOLR"
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
XhoI; Various sizes of sprouting eyes (2mm to 15mm) were
taken from tubers. The tubers were incubated at 26C in the
dark for 2-3 weeks prior to sprouting. The eyes were
frozen in liquid nitrogen immediately upon removal from
tubers."
197 a 125 c 164 g 181 t
BASE COUNT

```

| Query Match | 7.8% | Score 163.2 | DB 10 | Length 667 |
|-----------------------|----------------|--|----------|------------|
| Best Local Similarity | 57.2% | Pred. No. 4.1e-21 | | |
| Matches 316 | Conservative 0 | Mismatches 233 | Indels 3 | Gaps 1 |
| QY | 896 | GAATGTACATATAGGCACCTTGACTCGGATGATATAGTGTAGTCAAGTTCGCTTTGAAAGA | 955 | |
| Db | 16 | GAGGATTCCTGAAGGCTCTGGAGTCTGATGACATTTGAATCTGAACACTACTCTCGAAGA | 75 | |
| QY | 956 | GGATCACACCAATCTAGATGATGCGTGTCTTCATTTGCGTGTTCATATTCGCGTTGTCATATTCGAATGT | 1015 | |
| Db | 76 | GTCAACACGTCATTTAAACGATGCTTGTGCTCTCTATATGCTGTGCTCCTATTGCAACATC | 135 | |
| QY | 1016 | GAAGACCGCAACAGATCTTTTAAACTTTGATCT- --TGCGGATGTCACCAATAGCAATCC | 1072 | |
| Db | 136 | CAAGTTGTGAACGAGGTACTTGGCTGGGTGTAGCGCTGATGTCATCTTCAGACATC | 195 | |
| QY | 1073 | GAGGGGATATACGGTGTTCATGTTGTCGGATGCGGAAGGAGCCACAAATGATACTATC | 1132 | |
| Db | 196 | CCGAGGATATATGTCTTCATGTTGTCAGTACACGAAAGGAGCCATCAATAATATGGG | 255 | |
| QY | 1133 | TCATTTGAAAAAGGTGCAAGTCATCAGAAAGCAACTTTGGAGGTTAGAACCGCACTCAT | 1192 | |
| Db | 256 | ACTACTTGC AAAAGGATCGGTCTTTGGATATCTACCGGAGCGACATACAGCACTATC | 315 | |
| QY | 1193 | GATCGCAAAACAAGCCAATATGGCGGTGTAATGTAATAATATCCCGGAGCAATGCAAGCA | 1252 | |
| Db | 316 | CATATCGCGTAGATTGACTCGTCTAAAGGATTACAATGATCCACCGGACGAAAGGT | 375 | |
| QY | 1253 | TTCTCTCAAGCCGCTATCTGTAGAAATACTTAGACGAAGACAGCAACGAGACAAAT | 1312 | |
| Db | 376 | TACTAATAAGACCGGTTATGCATTTGATGTTTGGAGAGAGATGATTAGGAATCCAT | 435 | |
| QY | 1313 | TCCTAGAGATGTTCCCTCCCTTTTTCAGTGGCGCGCGATGAATTGAAGATCACGCTGCT | 1372 | |
| Db | 436 | GATTGGGAGCATGCTCTTTCATCATTTGGTGTGGCTGATGAATTACTCATGAGGTTGCT | 495 | |
| QY | 1373 | CGATCTTGAAATAGAGTTGCATTTGCTCAACGCTCTTTTTCACCGGAGCAACAAGTGC | 1432 | |

[illegible]

```
Db 142 AAATTATTGATTCACGGATAACTCTTGGATTAGCTTACCCGAGACAAATGGCTGTCCCTA 201
QY 883 AGAAACATGCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGT 942
Db 202 ACAACACCGTAAGAGGACTCAAGGCACCTTGATCTGATGATGGAGCTTGTACAGGA 261
QY 943 TGCCTTTTGAAGAGGATCACACCAATCTAGATGATGCGTGTCTCTTCATTTCGCTGTTG 1002
Db 262 TGCTGCTCACAGAGGCAGACTAACCTTGATGATGCATTTGCATTGCACATGCTGTAG 321
QY 1003 CATATTGCAATGTGAAGCCGCAACAGATCTTTTAAACTTGATCTTGCCGATGTCAACC 1062
Db 322 AACACTGTGACTCAAAAATTACACAGAACTTCTGGACATGCGCACTTGGGATGTTAATC 381
QY 1063 ATAGGAATCCGAGGGATATACGGTGTCTCATGTTGCTGCGATGCGGAGGAGCCACAAAT 1122
Db 382 TCAGAAACCCAGAGGTTATACTGTCTTCACATCGCTGCTAGGCGGAGAGATCCTAAAA 441
QY 1123 TGATACTATCTCT 1135
Db 442 TTGTTGCTCTTCCT 454
```

Search completed: October 8, 2002, 01:20:25
Job time : 1660.95 secs

GenCore version 5.1.3
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OM nucleic - nucleic search, using sw model

Run on: October 7, 2002, 21:30:19 ; Search time 2646.43 Seconds
(without alignments)
17175.023 Million cell updates/sec

Title: US-08-908-884-13
Perfect score: 2172
Sequence: 1 GTGACTTTCTAACTATGGCT.....ATTGAAAAA 2172

Scoring table: IDENTITY NUC
Gapop 10.0 , Gapext 1.0

Searched: 1797656 seqs, 10463268293 residues
Total number of hits satisfying chosen parameters: 3595312

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : GenEmbl.*

- 1: gb_ba.*
- 2: gb_hgt.*
- 3: gb_in.*
- 4: gb_cm.*
- 5: gb_ov.*
- 6: gb_pat.*
- 7: gb_ph.*
- 8: gb_pl.*
- 9: gb_pr.*
- 10: gb_ro.*
- 11: gb_sts.*
- 12: gb_sy.*
- 13: gb_un.*
- 14: gb_vl.*
- 15: em_ba.*
- 16: em_fun.*
- 17: em_hum.*
- 18: em_in.*
- 19: em_ju.*
- 20: em_on.*
- 21: em_or.*
- 22: em_ov.*
- 23: em_pat.*
- 24: em_ph.*
- 25: em_pl.*
- 26: em_ro.*
- 27: em_sts.*
- 28: em_un.*
- 29: em_vl.*
- 30: em_hgt_hum.*
- 31: em_hgt_inv.*
- 32: em_hgt_other.*
- 33: em_hgtgo_inv.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Query | Score | Match | Length | DB | ID | Description |
|------------|-------|-------|-------|--------|----|----|-------------|
|------------|-------|-------|-------|--------|----|----|-------------|

| | | | | | | |
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| 2 | 578.4 | 26.6 | 2154 | 8 | AY050455 | AY050455 Arabidopsis |
| 3 | 576.8 | 26.6 | 2011 | 6 | AR087502 | AR087502 Sequence |
| 4 | 576.8 | 26.6 | 2011 | 6 | AR087503 | AR087503 Sequence |
| 5 | 549.4 | 25.3 | 1597 | 6 | AR087504 | AR087504 Sequence |
| 6 | 527.6 | 24.3 | 1668 | 6 | AX351145 | AX351145 Sequence |
| 7 | 517.4 | 23.8 | 1608 | 6 | AR087505 | AR087505 Sequence |
| 8 | 513 | 23.6 | 1565 | 6 | AX351141 | AX351141 Sequence |
| 9 | 490 | 22.6 | 1194 | 6 | AR087506 | AR087506 Sequence |
| 10 | 391.8 | 18.0 | 4270 | 6 | AX351127 | AX351127 Sequence |
| c 11 | 376.4 | 17.3 | 140304 | 8 | AP002537 | AP002537 Oryza sat |
| c 12 | 376.4 | 17.3 | 168372 | 8 | AP002746 | AP002746 Oryza sat |
| 13 | 326.8 | 15.0 | 5655 | 8 | AR087501 | AR087501 Sequence |
| 14 | 326.8 | 15.0 | 5655 | 8 | ATU87794 | U87794 Arabidopsis |
| 15 | 326.8 | 15.0 | 96887 | 8 | AC066689 | AC066689 Arabidopsis |
| 16 | 317 | 14.6 | 1428 | 6 | AX049426 | AX049426 Sequence |
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| 18 | 316.2 | 14.6 | 786 | 6 | AR087507 | AR087507 Sequence |
| 19 | 315.4 | 14.5 | 2326 | 6 | AX351139 | AX351139 Sequence |
| 20 | 288 | 13.3 | 104738 | 8 | ATF20B18 | AL049483 Arabidops |
| 21 | 288 | 13.3 | 196286 | 8 | ATCHRIV64 | AL161564 Arabidops |
| 22 | 287.2 | 13.2 | 1830 | 6 | AX049431 | AX049431 Sequence |
| 23 | 287.2 | 13.2 | 2120 | 6 | AX049433 | AX049433 Sequence |
| 24 | 283.6 | 13.1 | 498 | 6 | AX351135 | AX351135 Sequence |
| 25 | 282.6 | 13.0 | 2446 | 6 | AX351143 | AX351143 Sequence |
| 26 | 276 | 12.7 | 1824 | 6 | AX049430 | AX049430 Sequence |
| 27 | 276 | 12.7 | 2420 | 6 | AX049432 | AX049432 Sequence |
| 28 | 266.2 | 12.3 | 2154 | 6 | AX041006 | AX041006 Sequence |
| 29 | 231.4 | 10.7 | 2235 | 6 | AX049445 | AX049445 Sequence |
| 30 | 227.2 | 10.5 | 1385 | 6 | AX049441 | AX049441 Sequence |
| 31 | 212.2 | 9.8 | 705 | 6 | AX049428 | AX049428 Sequence |
| 32 | 202.6 | 9.3 | 103785 | 2 | AF003377 | AP003377 Oryza sat |
| 33 | 202.6 | 9.3 | 140823 | 2 | AP003371 | AP003371 Oryza sat |
| 34 | 198.4 | 9.1 | 706 | 6 | AX049434 | AX049434 Sequence |
| 35 | 185.6 | 8.5 | 498 | 6 | AX351133 | AX351133 Sequence |
| 36 | 174 | 8.0 | 7789 | 6 | AX041008 | AX041008 Sequence |
| 37 | 173.2 | 8.0 | 498 | 6 | AX351137 | AX351137 Sequence |
| 38 | 162.2 | 7.5 | 67220 | 8 | AB019224 | AB019224 Arabidops |
| c 39 | 151.8 | 7.0 | 95417 | 8 | ATT16H5 | AL024486 Arabidops |
| c 40 | 151.8 | 7.0 | 197114 | 8 | ATCHRIV51 | AL161551 Arabidops |
| c 41 | 56.2 | 2.6 | 91717 | 8 | AC005662 | AC005662 Arabidops |
| c 42 | 54.4 | 2.5 | 1141 | 6 | AX083744 | AX083744 Sequence |
| 43 | 51.8 | 2.4 | 185602 | 9 | AL139081 | AL139081 Human DNA |
| 44 | 50.8 | 2.3 | 91303 | 8 | ATF24I3 | AL138655 Arabidops |
| 45 | 49.4 | 2.3 | 7218 | 6 | I66494 | I66494 Sequence 14 |

ALIGNMENTS

RESULT 1
ATU76707
LOCUS Arabidopsis thaliana regulatory protein NPR1 (NPR1) mRNA, complete cds.
DEFINITION U76707
ACCESSION U76707.1 GI:1773294
VERSION
KEYWORDS
SOURCE thale cress.
ORGANISM Arabidopsis thaliana

REFERENCE
AUTHORS Cao, H., Glazebrook, J., Clarke, J.D., Volko, S. and Dong, X.
TITLE The Arabidopsis NPR1 gene that controls systemic acquired resistance encodes a novel protein containing ankyrin repeats
JOURNAL Cell 88 (1), 57-63 (1997)
MEDLINE 97148688
REFERENCE
AUTHORS Cao, H., Glazebrook, J., Clarke, J.D., Volko, S. and Dong, X.
TITLE Direct Submission
JOURNAL Submitted (30-OCT-1996) DCMB Group, Botany, Duke University, LSRC

| | | | | |
|------------|---|------|--------|-----------------|
| AY050455 | 2154 bp | mRNA | linear | PLN 20-AUG-2001 |
| LOCUS | Arabidopsis thaliana Atlg64280/F15H21_6 | mRNA | linear | PLN 20-AUG-2001 |
| DEFINITION | Arabidopsis thaliana Atlg64280/F15H21_6 mRNA, complete cds. | | | |
| ACCESSION | AY050455 | | | |
| VERSION | AY050455.1 | | | |
| KEYWORDS | FLI_CDNA. | | | |
| SOURCE | thale cress. | | | |
| ORGANISM | Arabidopsis thaliana | | | |
| REFERENCE | Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsi. | | | |
| AUTHORS | 1 (bases 1 to 2154) Koesema, E., Chen, H., Cheuk, R., Kim, C.J., Meyers, M.C., Shinn, P., Banh, J., Bowser, L., Carninci, P., Dale, J.M., Goldsmith, A.D., Hayashizaki, Y., Ishida, J., Jiang, P.X., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Lam, B., Lee, J.M., Lin, J., Liu, S.X., Miranda, M., Narusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Pham, P.K., Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Tang, C.C., Toriumi, M., Yamada, K., Yamamura, Y., Yu, G., Yu, S., Shinozaki, K., Davis, R.W., Theologis, A. and Ecker, J.R. | | | |
| TITLE | Arabidopsis cDNA clones | | | |
| JOURNAL | Unpublished | | | |
| REFERENCE | 2 (bases 1 to 2154) Koesema, E., Chen, H., Cheuk, R., Kim, C.J., Meyers, M.C., Shinn, P., Banh, J., Bowser, L., Carninci, P., Dale, J.M., Goldsmith, A.D., Hayashizaki, Y., Ishida, J., Jiang, P.X., Jones, T., Kamiya, A., Karlin-Neumann, G., Kawai, J., Lam, B., Lee, J.M., Lin, J., Liu, S.X., Miranda, M., Narusaka, M., Nguyen, M., Onodera, C.S., Palm, C.J., Pham, P.K., Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Tang, C.C., Toriumi, M., Yamada, K., Yamamura, Y., Yu, G., Yu, S., Shinozaki, K., Davis, R.W., Theologis, A. and Ecker, J.R. | | | |
| AUTHORS | Direct Submission | | | |
| TITLE | Submitted (08-AUG-2001) Salk Institute Genomic Analysis Laboratory (SIGNAL), Plant Biology Laboratory, The Salk Institute for Biological Studies, 10010 N. Torrey Pines Road, La Jolla, CA 92037, USA | | | |
| JOURNAL | RIKEN Genomic Sciences Center (GSC) members carried out the collection and clustering of RAFL cDNAs (RAFL cDNA : 'RIKEN Arabidopsis Full-length cDNA') : Seki, M., Narusaka, M., Ishida, J., Satou, M., Kamiya, A., Sakurai, T., Carninci, P., Kawai, J., Hayashizaki, Y. and Shinozaki, K. | | | |
| COMMENT | The Salk, Stanford, PGECC (SSP) Consortium members carried out the sequencing and annotation of the RAFL cDNAs: Koesema, E., Chen, H., Cheuk, R., Kim, C.J., Meyers, M.C., Shinn, P., Banh, J., Bowser, L., Dale, J.M., Goldsmith, A.D., Jiang, P.X., Jones, T., Karlin-Neumann, G., Lam, B., Lee, J.M., Lin, J., Liu, S.X., Miranda, M., Nguyen, M., Onodera, C.S., Palm, C.J., Pham, P.K., Quach, H.L., Sakurai, T., Satou, M., Seki, M., Southwick, A., Tang, C.C., Toriumi, M., Yamada, K., Yamamura, Y., Yu, G., Yu, S., Davis, R.W., Theologis, A., and Ecker, J.R. | | | |
| FEATURES | Koesema, E. (SSP/Salk) and Seki, M. (RIKEN GSC) contributed equally to this work. Shinozaki, K. (RIKEN GSC) and Ecker, J.R. (SSP/Salk) contributed equally to this work as PIs. | | | |
| source | Location/Qualifiers 1. .2154 /organism="Arabidopsis thaliana" /db_xref="taxon:3702" /chromosome="1" /clone="RAF107-16-K16(R13446)" /note="ecotype: Columbia" 1. .158 159. .1940 /note="transcription factor inhibitor I kappa B, putative" /codon_start=1 /product="At1g64280/F15H21_6" /protein_id="RAK91469.1" /db_xref="GI:15215850" /translation="MDTIDGADSYEISSTFSVDTNTDSSIVYLAEOVLGTGPDYS ALQLISNFSFVSDPDYFSDALVLDSDGSEVDFHRCVLSARSFFKSLAARAKKEK DSNNTAAKLEKTDKDYEVDSVTVLAYVYSSRPPPKGVSCADENCCHVAC RPADVLEVLVLAFLKIPELIYLRHLLVDKVVIEDTILVILKLANICGKACMK LIDRCKELIVASNDVMVSLPSLELVKEIIDRRKELGUEVPVKVKKHVSNNVHKALDS | | | |
| 5'UTR | | | | |
| CDS | | | | |

| | | | | | | |
|---|--|-----------------------|----------------|--------------------|-----------|-------------|
| DDIELVKKLLKEDHTNLDACALHFAVCNVKTKATDILLKLDLADVNRHNRPGYTVLH VAAWRKEPQLILSLLEKGSASEATLEGRTALMIKQATMAVECNINPEOCKHSLKGR LCVETLEQEDKREQIPRDVPGTSPFAVADELKMTLLDLNVALRAQRLFPTEAQAAMEI AMKGTCEFIIVTSLEPDLTKRTSPGVKTAPFRILEEHQSRLLKSKVLGKRF PRCSAVLDQIMNCEDLTQACGEDDTAEKRLQKQRYMEIQETILKKAFSNLELGS SLTDSSTSKSTGSKNSRKLSHRRR 1941. .2154 | 3'UTR | BASE COUNT | 602 a | 450 c | 493 g | 609 t |
| | ORIGIN | Query Match | 26.6% | Score 578.4 | DB 8 | Length 2154 |
| | | Best Local Similarity | 62.8% | Pred. No. 3.7e-138 | | |
| | | Matches 982 | Conservative 0 | Mismatches 546 | Indels 36 | Gaps 4 |
| QY 415 | CGGAGTTTGTACTACTTCGCGCAGCGTAAAGCTTGTGGTTTCCGGCCGCTGTGAAGGAATTC | 474 | | | | |
| DB 334 | CGCCGGATGATTCTACAGCGACGCTAAGCTTGTCTCTCCGAC--GCGCGGAAGTTT | 390 | | | | |
| QY 475 | CGGTGCACCGGTGCATTTTGTGCGGAGGAGTCCGCTCTTTAAGAATTTGTTGCGGTA | 534 | | | | |
| DB 391 | CTTTCACCGGTGCGTTTGTGAGCGAAGAGCTCTTCTTCAAGAGCGCTTTAGCGCGC | 450 | | | | |
| QY 535 | AAAAGGAGAAGAAATAGTAGT-----AAGSTGCAATTGAAGAGGTGA | 576 | | | | |
| DB 451 | CTAAGAAGGAGAAAGACTTCAACAACACCGCGCGCTGAAGCTCGAGCTTAAGGAGATTG | 510 | | | | |
| QY 577 | TGAAAGACATGAGGTGAGCTATGATGCTTAATGAGTGATTTGGCTTATTGTGTATAGTG | 636 | | | | |
| DB 511 | CCAAGGATTACGAAGTCGGTTTCGATCGTGTGACGTGTTTGGCTTATGTTACAGCA | 570 | | | | |
| QY 637 | GTAAGTTAGGCTTCACCTAAAGATGTGTGTTGTGTGACAAATGACTGCTCTCATG | 696 | | | | |
| DB 571 | CGAGATGAGACCGCGCTAAAGAGTTCCTGAATGCGCAGACGAGAATTCGTGCCACG | 630 | | | | |
| QY 697 | TGGCTGTGAGGACGCTGCGATTCCCTGTTGAGTGTTCGTACACATCATTTACCTTC | 756 | | | | |
| DB 631 | TGGCTTGGCGCGCGGTGATTCATGTTGGAGGTCTCTATTGGCTTTCATCTTCA | 690 | | | | |
| QY 757 | AGATCTCTGAATTTGGTTGACAAGTTTCAGACACACTACTGGATATTTCTTGACAAAAC | 816 | | | | |
| DB 691 | AGATCCCTGAAATTAATTAATCTCTATCAGAGGCACCTATTGACAGCTTGTACAGAAAG | 750 | | | | |
| QY 817 | CAGCAGCATGTAATGATGCTTTTATCTGTGCAACATTTGCTGAACATCGCCAGA | 876 | | | | |
| DB 751 | TATAGAGCACATGTTGTTACTCAAGCTTGTGATATATGTTGGTAAAGCTTGTATGA | 810 | | | | |
| QY 877 | GATTCTTCAAGCTGCAATGAGATTAATGTCAAAGTCTAATGTTGATATCATAACCCCTG | 936 | | | | |
| DB 811 | AGCTATTGGATAGATGTAAGAGATTAATGTCAAAGTCTAATGATAGATATGTTAGTCTTG | 870 | | | | |
| QY 937 | ATAAAGCCTTCCCTCATGACATTTGTAACAATAATCTGATTCACGACCGGAATTCGGTC | 996 | | | | |
| DB 871 | AAAAGCTATTCGCCGAGAGCTTGTAAAGAGATAATGATAGACGTAAGAGCTTGGTT | 930 | | | | |
| QY 997 | TACAAGGCCCTGAAAGCAACGGTTTTCTCTGATAAAGATGTTTAAGAGGATACATAGGCGAT | 1056 | | | | |
| DB 931 | TGGAGTACCTAAAGTAA-----AGAACATGTCGAATGTACATTAAGGCAC | 978 | | | | |
| QY 1057 | TGGATTCGTGATGTTGAAATTAATCAAAATGTTGCTTAAGAGAGGGGCATACCTACCTAG | 1116 | | | | |
| DB 979 | TTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTGAAGAGAGGATCACACCAATCTAG | 1038 | | | | |
| QY 1117 | ATGATGATATGCTCTCCATTAATTAATCAAAATTAATCAAAATTAAGGGGATACACGGTGTGC | 1176 | | | | |
| DB 1039 | ATGATGGGTGTGCTCTCAATTCGCTTTCGCTTTCGCTTTCGCTTTCGCTTTCGCTTTCGCT | 1098 | | | | |
| QY 1177 | TTCTAGATCTTGGCACTTGTCTGCTGATTAATTAATCAAAATTAATCAAAATTAAGGGGATACACGGTGTGC | 1236 | | | | |
| DB 1099 | TTTTAAACTGTGCTTGGCGATGTCACCAATAGGAATTCGAGGGGATATACGGTGTCTC | 1158 | | | | |
| QY 1237 | ATGTTGAGCATATGAGGAAGAGCCTAAAATTTAGTGTCTCCCTTTTAAACCAAGAGGACTA | 1296 | | | | |
| DB 1159 | ATGTTGCTGCGATGCGGAAGAGGCCAACAATGATACACTCTCTATTTCGAAAAAGGTGCAA | 1218 | | | | |

[illegible]

| | | | |
|-----------------------|--|--|----------------------------|
| Db | 947 | CTAAATCGTTGCTCTCCCTTTTAAACCAAGGTCGCCGCCCTTCAGATTTTACATTTGATG | 1006 |
| Qy | 1321 | GAAGAAAGCACTTCAATTCGCCAAGAGAGGCTCACTAGGCTTGTGGATTTCACTAGTAAGTCTC | 1380 |
| Db | 1007 | GAAGAAAGCAAGTTCAAATCTCAAAGAGACTCAACAAACATGGTGATTTATTTTGGGAATA | 1066 |
| Qy | 1381 | CGAGGAAGGAAATCTGCTTCGAATGATCGGTATATGCATTGAGATTTCTGGAGCAAGCAG | 1440 |
| Db | 1067 | CTGAAGAAGGAAGCGCTCCCAATGATAAATATGATGATTTGAGATATTTGAGCAAGCTG | 1126 |
| Qy | 1441 | AAAGAAGAGACCTCTGCTAGGAGAAGCTTCGTATCTCTTGTATGCGTAGCGGCGATGATT | 1500 |
| Db | 1127 | AAAGAAGGAGTCCCAACTTGGAGAAGCATCACTTCTCTTGCATTGGCTGGTACTGCT | 1186 |
| Qy | 1501 | TGCGTATGAGCTGTTATACCTTGAATAGAGTTGGCCTGGCTAAACTCCTTTTCCAA | 1560 |
| Db | 1187 | TTCTGGGAAGGTACTGTACCTTGAACACCGAGTTGCTTTGGCAAGGATAATGTTTCCAA | 1246 |
| Qy | 1561 | TGGAAGCTAAAGTTGCAATGGACATTTGCTCAAGTTGATGGCACTTCTCAGTTCCCACTGG | 1620 |
| Db | 1247 | TTGAGCAAGAGTAGCAATGGACATTTGCTCAAGTGGATGGTACTTTGGAATTTACCCTTG | 1306 |
| Qy | 1621 | CTAGCATCGGCAAAAGATGGCTAATGCAGAGAGACAACAGTAGATTTGAAACGAGGCTC | 1680 |
| Db | 1307 | GT-----TCTAGTACAATCCACTCTGGAGATAACAACCGTTGATCTGAATGATACTT | 1360 |
| Qy | 1681 | CTTTCAAGATAAAGAGAGAGCACTTGAATCGGCTTAGAGCACTCTCTAGAACTCTAGAAC | 1740 |
| Db | 1361 | CTTTCAAAATGAAGGAGGAACACTTAGCTCGGATGAGAGCCCTCTCCAAAACAGTTGAAC | 1420 |
| Qy | 1741 | TTGAAAAACGCTTCTTTCCAGCTGTTTTCAGAAAGTTCTAAATAAAGATCATGATGCTGATG | 1800 |
| Db | 1421 | TCGGCAAAAGTTTCTTCCACGCTGTTTCAATTCGCTGGACAAGATCATGACCATGA-- | 1478 |
| Qy | 1801 | ACTGTCTGAGATAGCTTACATGGGGAATGATACGGCAAGAGAGCGTCAACTGAAGAAGC | 1860 |
| Db | 1479 | ----ACCTGAGCTGGCTTCCCTCGAAGAGATGCATCTCCGA-----GAGGAAGA | 1525 |
| Qy | 1861 | AAAGTACATGGAATTCACAGAAATTCGTACTAAGCAATTCACATGAGATAAACAAGAT | 1920 |
| Db | 1526 | GGAGTTTCAGCACTGCAAGATACGCTTTCGAAGCGCTTCAGGAGGCAAGGAGGAGT | 1585 |
| Qy | 1921 | ATGATAAGACTAACAACTCTCCTCATCTTGTCTCTACATCTTAAGGAGGATAGATAA | 1978 |
| Db | 1586 | TTACAGAAACACAACCCCTTTCATCTTCGTATCGTCGACGTCACATGACAGGAA | 1643 |
| RESULT 7 | | | |
| AR087505 | | | |
| LOCUS | AR087505 | 1608 bp | DNA linear PAT 07-SEP-2000 |
| DEFINITION | Sequence 11 from patent US 5986082. | | |
| ACCESSION | AR087505 | | |
| VERSION | AR087505.1 GI:10014268 | | |
| KEYWORDS | . | | |
| SOURCE | Unknown. | | |
| ORGANISM | Unknown. | | |
| REFERENCE | Unclassified. | | |
| AUTHORS | 1 (bases 1 to 1608) | | |
| TITLE | Uknes,S.Joseph., Hunt,M.Denise., Steiner,H.-Y. and Ryals,J.Andrew. | | |
| JOURNAL | Altered forms of the NIM1 gene conferring disease resistance in plants | | |
| FEATURES | Patent: US 5986082-A 11 16-NOV-1999; | | |
| source | Location/Qualifiers | | |
| | 1..1608 | | |
| | /organism="unknown" | | |
| BASE COUNT | 447 a | 340 c | 385 g 436 t |
| ORIGIN | | | |
| Query Match | 23.88; Score 517.4; DB 6; Length 1608; | | |
| Best Local Similarity | 63.08; Pred. No. 2e-122; | | |
| Matches | 882; Conservative | 0; Mismatches | 481; Indels 36; Gaps 4; |
| Qy | 415 | CGAGTTTGACTACTTCGCGCAGCTAAGCTTGTTGGTTTCCGGCCGCTGTAAGCAATTC | 474 |

Db 218 CGCGGATGATTTCTACAGGAGCCTAAGCTGTCTCTCCGAC - - - - - GCCCGGAGATT 274
QY 475 CGGTGACCGGTGCATTTTGTGCGGAGGAGTCCGTTCTTTTAAAGAAATTTGTTCTGCGGTA 534
Db 275 CTTTCCACCGGTGCGTTTGTGACGAGAGAGCTCTTCTTCAAGAGCGCTTACGCGCG 334
QY 535 AAGAGGAGAGATAGTAGT - - - - - AAGTGGAAATGAAGGAGGTGA 576
Db 335 CTAAAGAGGAGAGAGACTCCAAACACCGCCCGCTGAAGCTTCGAGCTTAAGGAGATTG 394
QY 577 TGAAGAGCATGAGGTGAGCTATGATGCTGTATATAGTGTATTGGCTTATTTGTATAGTG 636
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QY 697 TGGCTTGTAGCCAGCTGTGGCAATTCCTGGTTGAGGTTTGTACACATCATTTACCTTTC 756
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QY 817 CAGCAGAGATGTAATGATGGTTTTATCTGTTGCAACATTTGTGTGAAGCATGCGAGA 876
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QY 1654 GGACAAAGTATGATTTGAACGAGGCTCTTTCAAGATATAAAGAGAGGACACTTGAATCGGC 1713
Db 1463 GAACATCACCGGGTGAAGAGATAGCACCTTTCAAGATCTTAGAAGAGCATCAAAAGTAGAC 1522
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RESULT 8
AX351141
LOCUS AX351141 1565 bp DNA linear PAT 06-FEB-2002
DEFINITION Sequence 15 from Patent WO0166755.
ACCESSION AX351141
VERSION AX351141.1 GI:18616494
KEYWORDS
SOURCE Oryza sativa.
ORGANISM Oryza sativa
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.
REFERENCE
AUTHORS Wang, H.X., Salmeron, J.M., Willits, M.G. and Lawton, K.A.
TITLE Monocotyledonous plant genes and uses thereof
JOURNAL Patent: WO 0166755-A 15 13-SEP-2001;
Syngenta Participations AG (CH)
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BASE COUNT 451 a 346 c 367 g 401 t
ORIGIN

Query Match 23.6%; Score 513; DB 6; Length 1565;
Best Local Similarity 65.7%; Pred. No. 2,7e-121;
Matches 785; Conservative 0; Mismatches 395; Indels 15; Gaps 2;

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QY 820 CAGACGATGATGATGGTTTTATCTGTTGCAACATTTGTTGTAAGCATGCGAGAGAT 879
Db 110 TAGATAACCTCTTATTTGATCTTATCTGTGCGCAACTATGCAACAAATCTTGCATGAAC 169
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| DEFINITION | Sequence 1 from Patent WO0166755. | | |
| ACCESSION | AX351127 | | |
| VERSION | AX351127.1 | GI:18616481 | |
| KEYWORDS | bread wheat. | | |
| SOURCE | Triticum aestivum | | |
| ORGANISM | Triticum aestivum | | |
| REFERENCE | Wang, H. X., Salmeron, J. M., Willits, M. G. and Lawton, K. A. | | |
| AUTHORS | Monocotyledonous plant genes and uses thereof | | |
| TITLE | Patent: WO 0166755-A 1 13-SEP-2001; | | |
| JOURNAL | Syngenta Participations AG (CH) | | |
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| Db | 1652 | TTCTTAACAACACGTAAGAAGGATACTCAGAGCACTTCGATTCGATGATGTTGGAGCTTG | 1711 |
| Qy | 1081 | TACAAATGTTGCTAAGAGAGGGGCATACCTACCTAGATGATGATGATGATGATGATGATG | 1140 |
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| Db | 1892 | CTAAATCTGTTGTCCTCTTTTAAACAAAGGTCGCGGCTTCAGATTTTACATTTGATG | 1951 |
| Qy | 1321 | GAAGAAAGCACTTCAAAATCGCCCAAGAGGCTCACTAGGCTTGTGGATTTTCAGTAAGCTC | 1380 |
| Db | 1952 | GAAGAAAGCAGTTCAAAATCTCAAGAGACTCACAACATGCTGATTTTGGGAATA | 2011 |
| Qy | 1381 | CGGAGGAAGGAAAATCTGCTTCGAATGATCGGTTATGCATTTGATGATGATGATGATGATG | 1440 |
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| AP002537/c | | | |
| LOCUS | AP002537 | 140304 bp | DNA linear PLN 26-JAN-2001 |
| DEFINITION | Oryza sativa genomic DNA, chromosome 1, PAC clone: P0001B06. | | |
| ACCESSION | AP002537 | | |
| VERSION | AP002537.2 | GI:10934069 | |
| KEYWORDS | Oryza sativa (cultivar:Nipponbare) DNA, clone:P0001B06. | | |
| SOURCE | Oryza sativa | | |
| ORGANISM | Oryza sativa | | |
| REFERENCE | Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; | | |
| AUTHORS | Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; | | |
| TITLE | Ehrhartoideae; Oryzeae; Oryza. | | |
| JOURNAL | 1 (bases 1 to 140304) | | |
| REFERENCE | Sasaki, T., Matsumoto, T. and Yamamoto, K. | | |
| AUTHORS | Oryza sativa nipponbare(GA3) genomic DNA, chromosome 1, PAC | | |
| TITLE | clone:P0001B06 | | |
| JOURNAL | Published Only in DataBase (2000) In press | | |
| REFERENCE | 2 (bases 1 to 140304) | | |
| AUTHORS | Sasaki, T., Matsumoto, T. and Yamamoto, K. | | |
| TITLE | Direct Submission | | |
| JOURNAL | Submitted (21-JUN-2000) Takuji Sasaki, National Institute of | | |
| REFERENCE | Agrobiological Resources, Rice Genome Research Program; Kannondai | | |
| AUTHORS | 2-1-2, Tsukuba, Ibaraki 305-8602, Japan | | |
| TITLE | (E-mail:tsasaki@abr.affrc.go.jp, URL:http://rgp.dna.affrc.go.jp/, | | |
| JOURNAL | Tel:81-298-38-7441, Fax:81-298-38-7468) | | |
| COMMENT | On Oct 19, 2000 this sequence version replaced gi:8698575. | | |
| | Genes were predicted from the integrated results of the following: | | |
| | GENSCAN1.0, BLASTN2.0, BLASTX2.0 as well as SplicePredictor | | |

(October 1998 version). The genomic sequence was searched against NCBI NonRedundant Protein database, nr (ftp://ncbi.nlm.nih.gov/blast/db) and the cDNA sequence database at RGP. Protein homologies of the coding regions were searched against NCBI NonRedundant Protein database with BLASTp2.0. ESTs represent the identified cDNA sequences using BLASTN 2.0 with the corresponding DBJ accession no. and RGP clone ID. A gene with identity or significant homology to a protein is classified based on the protein name to indicate the homology level such as same name, 'putative-' and '-like protein'. A gene without significant homology to any protein but with EST homology (covering almost the entire length of partial sequence) is classified as an 'unknown' protein. A gene predicted with a gene prediction program is classified as a 'hypothetical' protein. The orientation of the sequence is from SP6 to T7 of the PAC clone. This sequence of P0001B06 clone has an overlap with P0671B11 (DBJ:AP002746) clone at the position 1 to 61357 of 5' end. The sequence of this clone starts at the position 107016 of P0671B11. Detailed information on overlap and assembly quality together with annotation of this entry is available at <http://rgp.dna.affrc.go.jp/GenomeSeq.html> Detailed information on overlap and assembly quality together with annotation of this entry is available at <http://rgp.dna.affrc.go.jp/GenomeSeq.html>.

FEATURES

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| CDS | <p>join(2314..2477,3897..4069,4075..4227,4366..4489,5212..5449,5890..5936,5989..6115,6223..6423,6713..6919,7008..7079,7161..7292,7386..7427,7516..7740,8028..8231,8354..8572)</p> <p>/gene="P0671B11.1"</p> <p>/note="contains ESTs AU068014(C11507),C28532(C61484),AU090544(C61415)"</p> <p>/codon_start=1</p> <p>/product="putative pyrophosphate-dependent phosphofructo-1-kinase"</p> <p>/protein_id="BABI2686.1"</p> <p>/db_xref="GI:9988420"</p> <p>/translation="MAVKWDYTFDLAETACDAIQYVGKNDSEFALSQGTAVGESWRW HRETNLVLSIMPSCDEAGREGVYIVSGRGRRRHCVSEVQGSAGSLSSPPL VPTLWALVGRGVVAPGAEAGAPLVLAGLSVTVVPAACCFACSGMDADSPRR TPTVSPNTQGLIPWYQGLIPRHPVSWPYSIRYSIPWYQSAFCAPRRRERMEA VCPAPAGVPEKLLVYKESKAAAPASTMAAKWKKKLVGGDGVLEDPVHL TDYLPALPTYNPQDNPAYSVWKIPILFPHSPTTLGKRLTFHLTCGAPSSCROYFN TDDTVKIVVHKTSARGTHFRAGPRQRYVQSDVNAALVTCGGLCPGLNVIREL VCGLYDMKYTVSVVIGEGYKGYFSRNTVALTPKSVNDIHKRGSTVLGTRGHDGK IVDSIKRGINQVLIIGDGQKGAISVIFQEVRRRLKSKVVGPKTIDNDIQVIDKS FGFTVAEQAQALNAAHVAESAENGIGVVKLMGRNSGFIAMYTATLASRDVDCCLIP ESPYLEGGLLEFIEKRLDNGHMVIVVAEGAGODLIAKSMNFVDTQASGNKLLP DVGLWSQIKDFHKRRKNPITLKYIDPTVMIRAVRNASDNVYCTLLAHSALHGM AGYTGFTVAPVNGRHAYIPYRITKONKVVITDRMARVLCSTNCQFSLSHEDVEHL KHDDDEHHLNTOILEGESSPVKDSKONGTAAPV"</p> <p>complement(join(9764..9865,9991..10063,10383..10500,10586..10682,10803..10898,10989..11084,11181..11324,12330..12440,12703..12752,13035..13225,13247..13431,13788..13823))</p> <p>/gene="P0671B11.2"</p> <p>complement(join(9764..9865,9991..10063,10383..10500,10586..10682,10803..10898,10989..11084,11181..11324,12330..12440,12703..12752,13035..13225,13247..13431,13788..13823))</p> <p>/gene="P0671B11.2"</p> <p>/note="contains ESTs C22394(C30013),C22393(C30013)"</p> <p>/codon_start=1</p> <p>/product="putative protein kinase"</p> <p>/protein_id="BABI2687.1"</p> <p>/db_xref="GI:9988421"</p> <p>/translation="MLISEYNWATYKDFMFSTHEALQKREP IKAHLLSQPTRYVI LVAHAMSAIRPSIILGAHTVTYTGSSARTHEARNSTVERSTHVLKAASSPKSPKSP IRISPPRRRCGRSPPLSLPLPHGDRHRVALRGGEVWLGVCISIRHVEGFMASSHQ EVKRWLSDFDIGKPLGRKGHVYLAREKSNHIVALKVLFKSQKQVHQQLRRE VEIQSHLRHPNILRLGYFFDTRVILILEALKGELYKELQCKHFSSRSATYIASL AHALYILHGKHVIRHDIKPENLLISQSGELKIADFGWSVHTFNRRRTMCTGLDYLPE MVEKTEHDYHVDIWSGLICVFLYGPVPEAKEHSETYRIRVKVLDLKFPLKPFVSPA AKDLTISQMLKVNASHRLPLHLKLEHPWIVQNDAPSGVYRG"</p> <p>complement(join(17576..18104,18181..18310,18411..18546))</p> <p>/gene="P0671B11.3"</p> <p>complement(join(17576..18104,18181..18310,18411..18546))</p> <p>/gene="P0671B11.3"</p> <p>/note="contains ESTs AU082307(E0784),C72014(E0784)"</p> <p>/codon_start=1</p> <p>/product="putative MYB family transcription factor"</p> <p>/protein_id="BABI2688.1"</p> <p>/db_xref="GI:9988422"</p> <p>/translation="MGRTPCCDREAVKRGWSPEDDALRDYINRHGTAGNWLISLPNK AGLRCKRSCLRNLNLYLRDPIRHAFTDEDAITSLYKLSGKSWSTIAAQLRRTD NDKNHNWTKLRLLAAAACTPLPLPAPPPLAATTSPPSSULLPLPAPVPTKTE AVTCDDFLQQLPTATAATALRDPFADGAATDGGTSASASGNSWASATGVVYVG GGGGGLPEFCWSSDDLAGATAEDDHFIGGGYYIPDPLSSSLV"</p> <p>join(21560..21603,21647..21823,23060..23299,23892..23912,24246..24483,24832..24987,27438..27609,27873..28087)</p> <p>/gene="P0671B11.4"</p> | gene | <p>join(21560..21603,21647..21823,23060..23299,23892..23912,24246..24483,24832..24987,27438..27609,27873..28087)</p> <p>/gene="P0671B11.4"</p> <p>/notes="contains EST AU058063(E20266)"</p> <p>unknown protein"</p> <p>/codon_start=1</p> <p>/protein_id="BABI2689.1"</p> <p>/db_xref="GI:9988423"</p> |
| gene | <p>join(2314..2477,3897..4069,4075..4227,4366..4489,5212..5449,5890..5936,5989..6115,6223..6423,6713..6919,7008..7079,7161..7292,7386..7427,7516..7740,8028..8231,8354..8572)</p> <p>/gene="P0671B11.1"</p> <p>/note="contains ESTs AU068014(C11507),C28532(C61484),AU090544(C61415)"</p> <p>/codon_start=1</p> <p>/product="putative pyrophosphate-dependent phosphofructo-1-kinase"</p> <p>/protein_id="BABI2686.1"</p> <p>/db_xref="GI:9988420"</p> <p>/translation="MAVKWDYTFDLAETACDAIQYVGKNDSEFALSQGTAVGESWRW HRETNLVLSIMPSCDEAGREGVYIVSGRGRRRHCVSEVQGSAGSLSSPPL VPTLWALVGRGVVAPGAEAGAPLVLAGLSVTVVPAACCFACSGMDADSPRR TPTVSPNTQGLIPWYQGLIPRHPVSWPYSIRYSIPWYQSAFCAPRRRERMEA VCPAPAGVPEKLLVYKESKAAAPASTMAAKWKKKLVGGDGVLEDPVHL TDYLPALPTYNPQDNPAYSVWKIPILFPHSPTTLGKRLTFHLTCGAPSSCROYFN TDDTVKIVVHKTSARGTHFRAGPRQRYVQSDVNAALVTCGGLCPGLNVIREL VCGLYDMKYTVSVVIGEGYKGYFSRNTVALTPKSVNDIHKRGSTVLGTRGHDGK IVDSIKRGINQVLIIGDGQKGAISVIFQEVRRRLKSKVVGPKTIDNDIQVIDKS FGFTVAEQAQALNAAHVAESAENGIGVVKLMGRNSGFIAMYTATLASRDVDCCLIP ESPYLEGGLLEFIEKRLDNGHMVIVVAEGAGODLIAKSMNFVDTQASGNKLLP DVGLWSQIKDFHKRRKNPITLKYIDPTVMIRAVRNASDNVYCTLLAHSALHGM AGYTGFTVAPVNGRHAYIPYRITKONKVVITDRMARVLCSTNCQFSLSHEDVEHL KHDDDEHHLNTOILEGESSPVKDSKONGTAAPV"</p> <p>complement(join(9764..9865,9991..10063,10383..10500,10586..10682,10803..10898,10989..11084,11181..11324,12330..12440,12703..12752,13035..13225,13247..13431,13788..13823))</p> <p>/gene="P0671B11.2"</p> <p>complement(join(9764..9865,9991..10063,10383..10500,10586..10682,10803..10898,10989..11084,11181..11324,12330..12440,12703..12752,13035..13225,13247..13431,13788..13823))</p> <p>/gene="P0671B11.2"</p> <p>/note="contains ESTs C22394(C30013),C22393(C30013)"</p> <p>/codon_start=1</p> <p>/product="putative protein kinase"</p> <p>/protein_id="BABI2687.1"</p> <p>/db_xref="GI:9988421"</p> <p>/translation="MLISEYNWATYKDFMFSTHEALQKREP IKAHLLSQPTRYVI LVAHAMSAIRPSIILGAHTVTYTGSSARTHEARNSTVERSTHVLKAASSPKSPKSP IRISPPRRRCGRSPPLSLPLPHGDRHRVALRGGEVWLGVCISIRHVEGFMASSHQ EVKRWLSDFDIGKPLGRKGHVYLAREKSNHIVALKVLFKSQKQVHQQLRRE VEIQSHLRHPNILRLGYFFDTRVILILEALKGELYKELQCKHFSSRSATYIASL AHALYILHGKHVIRHDIKPENLLISQSGELKIADFGWSVHTFNRRRTMCTGLDYLPE MVEKTEHDYHVDIWSGLICVFLYGPVPEAKEHSETYRIRVKVLDLKFPLKPFVSPA AKDLTISQMLKVNASHRLPLHLKLEHPWIVQNDAPSGVYRG"</p> <p>complement(join(17576..18104,18181..18310,18411..18546))</p> <p>/gene="P0671B11.3"</p> <p>complement(join(17576..18104,18181..18310,18411..18546))</p> <p>/gene="P0671B11.3"</p> <p>/note="contains ESTs AU082307(E0784),C72014(E0784)"</p> <p>/codon_start=1</p> <p>/product="putative MYB family transcription factor"</p> <p>/protein_id="BABI2688.1"</p> <p>/db_xref="GI:9988422"</p> <p>/translation="MGRTPCCDREAVKRGWSPEDDALRDYINRHGTAGNWLISLPNK AGLRCKRSCLRNLNLYLRDPIRHAFTDEDAITSLYKLSGKSWSTIAAQLRRTD NDKNHNWTKLRLLAAAACTPLPLPAPPPLAATTSPPSSULLPLPAPVPTKTE AVTCDDFLQQLPTATAATALRDPFADGAATDGGTSASASGNSWASATGVVYVG GGGGGLPEFCWSSDDLAGATAEDDHFIGGGYYIPDPLSSSLV"</p> <p>join(21560..21603,21647..21823,23060..23299,23892..23912,24246..24483,24832..24987,27438..27609,27873..28087)</p> <p>/gene="P0671B11.4"</p> | CDS | <p>join(21560..21603,21647..21823,23060..23299,23892..23912,24246..24483,24832..24987,27438..27609,27873..28087)</p> <p>/gene="P0671B11.4"</p> <p>/notes="contains EST AU058063(E20266)"</p> <p>unknown protein"</p> <p>/codon_start=1</p> <p>/protein_id="BABI2689.1"</p> <p>/db_xref="GI:9988423"</p> |
| gene | <p>join(2314..2477,3897..4069,4075..4227,4366..4489,5212..5449,5890..5936,5989..6115,6223..6423,6713..6919,7008..7079,7161..7292,7386..7427,7516..7740,8028..8231,8354..8572)</p> <p>/gene="P0671B11.1"</p> <p>/note="contains ESTs AU068014(C11507),C28532(C61484),AU090544(C61415)"</p> <p>/codon_start=1</p> <p>/product="putative pyrophosphate-dependent phosphofructo-1-kinase"</p> <p>/protein_id="BABI2686.1"</p> <p>/db_xref="GI:9988420"</p> <p>/translation="MAVKWDYTFDLAETACDAIQYVGKNDSEFALSQGTAVGESWRW HRETNLVLSIMPSCDEAGREGVYIVSGRGRRRHCVSEVQGSAGSLSSPPL VPTLWALVGRGVVAPGAEAGAPLVLAGLSVTVVPAACCFACSGMDADSPRR TPTVSPNTQGLIPWYQGLIPRHPVSWPYSIRYSIPWYQSAFCAPRRRERMEA VCPAPAGVPEKLLVYKESKAAAPASTMAAKWKKKLVGGDGVLEDPVHL TDYLPALPTYNPQDNPAYSVWKIPILFPHSPTTLGKRLTFHLTCGAPSSCROYFN TDDTVKIVVHKTSARGTHFRAGPRQRYVQSDVNAALVTCGGLCPGLNVIREL VCGLYDMKYTVSVVIGEGYKGYFSRNTVALTPKSVNDIHKRGSTVLGTRGHDGK IVDSIKRGINQVLIIGDGQKGAISVIFQEVRRRLKSKVVGPKTIDNDIQVIDKS FGFTVAEQAQALNAAHVAESAENGIGVVKLMGRNSGFIAMYTATLASRDVDCCLIP ESPYLEGGLLEFIEKRLDNGHMVIVVAEGAGODLIAKSMNFVDTQASGNKLLP DVGLWSQIKDFHKRRKNPITLKYIDPTVMIRAVRNASDNVYCTLLAHSALHGM AGYTGFTVAPVNGRHAYIPYRITKONKVVITDRMARVLCSTNCQFSLSHEDVEHL KHDDDEHHLNTOILEGESSPVKDSKONGTAAPV"</p> <p>complement(join(9764..9865,9991..10063,10383..10500,10586..10682,10803..10898,10989..11084,11181..11324,12330..12440,12703..12752,13035..13225,13247..13431,13788..13823))</p> <p>/gene="P0671B11.2"</p> <p>complement(join(9764..9865,9991..10063,10383..10500,10586..10682,10803..10898,10989..11084,11181..11324,12330..12440,12703..12752,13035..13225,13247..13431,13788..13823))</p> <p>/gene="P0671B11.2"</p> <p>/note="contains ESTs C22394(C30013),C22393(C30013)"</p> <p>/codon_start=1</p> <p>/product="putative protein kinase"</p> <p>/protein_id="BABI2687.1"</p> <p>/db_xref="GI:9988421"</p> <p>/translation="MLISEYNWATYKDFMFSTHEALQKREP IKAHLLSQPTRYVI LVAHAMSAIRPSIILGAHTVTYTGSSARTHEARNSTVERSTHVLKAASSPKSPKSP IRISPPRRRCGRSPPLSLPLPHGDRHRVALRGGEVWLGVCISIRHVEGFMASSHQ EVKRWLSDFDIGKPLGRKGHVYLAREKSNHIVALKVLFKSQKQVHQQLRRE VEIQSHLRHPNILRLGYFFDTRVILILEALKGELYKELQCKHFSSRSATYIASL AHALYILHGKHVIRHDIKPENLLISQSGELKIADFGWSVHTFNRRRTMCTGLDYLPE MVEKTEHDYHVDIWSGLICVFLYGPVPEAKEHSETYRIRVKVLDLKFPLKPFVSPA AKDLTISQMLKVNASHRLPLHLKLEHPWIVQNDAPSGVYRG"</p> <p>complement(join(17576..18104,18181..18310,18411..18546))</p> <p>/gene="P0671B11.3"</p> <p>complement(join(17576..18104,18181..18310,18411..18546))</p> <p>/gene="P0671B11.3"</p> <p>/note="contains ESTs AU082307(E0784),C72014(E0784)"</p> <p>/codon_start=1</p> <p>/product="putative MYB family transcription factor"</p> <p>/protein_id="BABI2688.1"</p> <p>/db_xref="GI:9988422"</p> <p>/translation="MGRTPCCDREAVKRGWSPEDDALRDYINRHGTAGNWLISLPNK AGLRCKRSCLRNLNLYLRDPIRHAFTDEDAITSLYKLSGKSWSTIAAQLRRTD NDKNHNWTKLRLLAAAACTPLPLPAPPPLAATTSPPSSULLPLPAPVPTKTE AVTCDDFLQQLPTATAATALRDPFADGAATDGGTSASASGNSWASATGVVYVG GGGGGLPEFCWSSDDLAGATAEDDHFIGGGYYIPDPLSSSLV"</p> <p>join(21560..21603,21647..21823,23060..23299,23892..23912,24246..24483,24832..24987,27438..27609,27873..28087)</p> <p>/gene="P0671B11.4"</p> | CDS | <p>join(21560..21603,21647..21823,23060..23299,23892..23912,24246..24483,24832..24987,27438..27609,27873..28087)</p> <p>/gene="P0671B11.4"</p> <p>/notes="contains EST AU058063(E20266)"</p> <p>unknown protein"</p> <p>/codon_start=1</p> <p>/protein_id="BABI2689.1"</p> <p>/db_xref="GI:9988423"</p> |

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|-----------------------|------------------------------------|---|--------------------|-----------------|----------------|-----------------|
| Query Match | | 17.3%; | Score 376.4; | DB 8; | Length 168372; | |
| Best Local Similarity | | 66.3%; | Pred. No. 4.5e-86; | | | |
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| Db | 162296 | TGCAGCGCGTCTCTCTGATCTCTGATAGGTTGAGGTAGATAAAGCTTCTATTGATCT | 162237 | | | |
| Qy | 841 | TATCTGTTGCAACATTTGTGGTAAGCATCGGAGAGATTCCTTCAAGCTGCATTGAGA | 900 | | | |
| Db | 162236 | TATCTGTTGCCAACTTATGCAACAAATCTTGCAATGAACCTGTGAAAGATGCGCTTGATA | 162177 | | | |
| Qy | 901 | TTATTTGCAAGCTAAATGTTGATATCAACCTTGATAAAGCCTTGCCCTCATGACATTTG | 960 | | | |
| Db | 162176 | TGGTAGTCCGGTCAACCTTGACATGATTAATCTTGAGAGTCAATGCGCTCCAGATGTTA | 162117 | | | |
| Qy | 961 | TAAACAAATTAATGATTCACGAGCGGAACCTTGCTTACAAAGGCGCTGAAAGCAACGGTT | 1020 | | | |
| Db | 162116 | TCAAGCAGATTTATTGATGACGCGCTTAAGCCCTCGGATTAATTTTCAACGAAAAACAAGGAT | 162057 | | | |
| Qy | 1021 | TTCTCTGATAAACAATGTTAAGAGGATACATAGGCGATTTGGATTTGATGATGATGTTGAATTAC | 1080 | | | |
| Db | 162056 | TTCTTAACAAACATGTGAGGAGGATACACAGAGCCCTTGACTCTGACGATGTAGAGCTAG | 161997 | | | |
| Qy | 1081 | TACAAATGTTCTTAAGAGAGGGGCATACTACCCCTAGATGATGATGATGCTCTCCATTATG | 1140 | | | |
| Db | 161996 | TCAGGATGCTGCTCACTGAAGGACAGACAAATCTTGATGATGCTGCTGCACTGCATACG | 161937 | | | |
| Qy | 1141 | CTGTAGCGTATTGGCATGCAAAAGACTACAGACAGAACTTCTAGATCTTGCACTTGCTGATA | 1200 | | | |
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| Qy | 1201 | TTAATCATCAAAATTCRAAGGGATACAGGTCGATGTTGCGACCATGAGGAAAGGC | 1260 | | | |
| Db | 161876 | TTAATCATAGAAACCCCAAGAGGTTATCTGTTCTCAATTTGCTGCGAGGCGAAGAGGC | 161817 | | | |
| Qy | 1261 | CTAAATTTGATGTCCTTTTAAACCAAGAGCTAGACCTTCTGATCTGACATCCCGATG | 1320 | | | |
| Db | 161816 | CTAAATCATTTGTCCTCTTTTAAACCAAGGGGCTCGGCCAGCAGATGTTACATTCGATG | 161757 | | | |
| Qy | 1321 | GAGAAAGACACTTCAATCCCAAGAGGCTCACTAGGCTTGGGATTTCAAGTAAGTCTC | 1380 | | | |
| Db | 161756 | GGAGAAAGCGGTTCAATCTCAAAAAGACTTAACAAAACAGGGGATTTACTTTGGGGTTA | 161697 | | | |
| Qy | 1381 | CGGAGGAAGGAAATCTGCTTCGAATGATCGGTTATGCAATTCGATTCGAGCAACGACG | 1440 | | | |
| Db | 161696 | CGRAGAAGGAAACCTTCTCCAAAGATAGGTTATGTTATGAAATACTGGAGCAAGCTG | 161637 | | | |
| Qy | 1441 | AAAGAAGAGACCCCTGCTAGGAGAAGCTTCTGTATCTTGTCTATGCGAGCGGATGATT | 1500 | | | |
| Db | 161636 | AAAGAAGGAGCCCAACTCGGAGAAGCATCAGTTTCTCTTGCAATGGCAGGTGAGAGTC | 161577 | | | |
| Qy | 1501 | TGCGTATGAACCTGTTATACCTTCAAAATAGAGTTGGCCCTGGCTAAACTCCTTTTCCAA | 1560 | | | |
| Db | 161576 | TACGAGGAGGTTGCTGTATCTTCAAAACCGAGGTAACTTCAATATATATATAATGGGT | 161517 | | | |
| Qy | 1561 | TGGAAGCTAAAAGTTGCAATGGACATTCGCTCAAGTTGAT | 1598 | | | |
| Db | 161516 | TCATAATGCTGTTCTTTGGAATTAAGTTTGGT | 161479 | | | |
| RESULT 13 | | | | | | |
| LOCUS | AR087501 | | 5655 bp | DNA | linear | PAT 07-SEP-2000 |
| DEFINITION | Sequence 1 from patent US 5986082. | | | | | |
| ACCESSION | AR087501 | | | | | |
| VERSION | AR087501.1 | | GI:10014264 | | | |
| KEYWORDS | | | | | | |
| SOURCE | Unknown. | | | | | |
| ORGANISM | Unknown. | | | | | |
| REFERENCE | 1 (bases 1 to 5655) | | | | | |

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|-----------------------|--|---|------|--|--|--|--|--|--|--|
| AUTHORS | Uknes, S. Joseph, Hunt, M. Denise, Steiner, H. and Ryals, J. Andrew. | | | | | | | | | |
| TITLE | Altered forms of the NIM1 gene conferring disease resistance in plants | | | | | | | | | |
| JOURNAL | Patent: US 5986082-A 1 16-NOV-1999; | | | | | | | | | |
| FEATURES | Location/Qualifiers | | | | | | | | | |
| source | 1..5655 | | | | | | | | | |
| BASE COUNT | 1758 a 1014 c 1069 g 1814 t | | | | | | | | | |
| ORIGIN | | | | | | | | | | |
| Query Match | 15.0%; Score 326.8; DB 6; Length 5655; | | | | | | | | | |
| Best Local Similarity | 58.6%; Pred. No. 2.7e-73; | | | | | | | | | |
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| Qy | 415 | CGGAGTTTGACTACTTCGCGGACGCTAAGCTTGTGGTTTCCGCGCCGCTGTAAGGAAATTC | 474 | | | | | | | |
| Db | 2962 | CGCGGATGATTTCTACGCGAGCGCTAAGCTTGTCTCTCCGAC--GGCCGGGAAGTTT | 3018 | | | | | | | |
| Qy | 475 | CGGTGCACCGGTGCATTTTGTGCGGAGGAGTCCGTTCTTTAAGAAATTTGTTCTGCCGTA | 534 | | | | | | | |
| Db | 3019 | CTTTCCACCGGTGGTTTGTGACGAGAACTCTTCTTCAAGAGCGCTTTAGCCGCCG | 3078 | | | | | | | |
| Qy | 535 | AAAAGGAGAAATAGTAGT-----AAGTGGAAATGAAGGAGGTGA | 576 | | | | | | | |
| Db | 3079 | CTAAGAAGGAGAAAGACTCCAACAACACCGCGCGTGAAGCTCGAGCTTAAGGAGATTG | 3138 | | | | | | | |
| Qy | 577 | TGAAGAGCATGAGGTGAGCTATGATGCTGTAATGAGTGTATTGGCTTATTTGTATAGTG | 636 | | | | | | | |
| Db | 3139 | CCAAGGATTACGAAGTCGGTTTCGATTCGGTTGACTGTTTGGCTTATGTTTACAGCA | 3198 | | | | | | | |
| Qy | 637 | GTAAGTTTAGGCTTCACCTAAAGATGTGTGTTTGTGTGGACAATGACTGCTCTCATG | 696 | | | | | | | |
| Db | 3199 | GCAGAGTGAGACCGCGCTTAAAGGAGTTTCTGAATGCGCAGAGAGAAATTCCTGCCAG | 3258 | | | | | | | |
| Qy | 697 | TGGCTTGTAGCCAGCTGTGGCATTCCTGGTTGAGGTTTGTACACATCATTTACTTTC | 756 | | | | | | | |
| Db | 3259 | TGGCTTCCGCGCGCGGTGGATTCATGTTGGAAGTTCCTATTGGCTTTCATCTCA | 3318 | | | | | | | |
| Qy | 757 | AGATCTCTGAAT-----AAGTGGAAATGAAGGAGGTGA | 768 | | | | | | | |
| Db | 3319 | AGATCCCTGAATTAATTAATCTCTATCAGGTAAACACCATCTGCATTAAGCTATGGTTA | 3378 | | | | | | | |
| Qy | 769 | -----TGGTTGACAAGTTTTCAGAGACACCTACTGT | 797 | | | | | | | |
| Db | 3379 | CACATTTCATGAATATGTTCTTACTTGTAGTACTTGTATTTGTTTTCAGAGGCACTTATG | 3438 | | | | | | | |
| Qy | 798 | GATATTTCTGACAAAACCTGCAGACAGCATGTAATGATGTTTATCTGTTGCCAAACATT | 857 | | | | | | | |
| Db | 3439 | GACGTTGTAGACAAAGTGTATTAGAGACACATTTGGTTTATCTCAAGCTTGCATAATA | 3498 | | | | | | | |
| Qy | 858 | TGTGTTAAAGCATCGGAGATTTGCTTTCAAGCTGCATTGAGATTATTGTCAGTCTTAAT | 917 | | | | | | | |
| Db | 3499 | TGTGGTTAAGCTTGTATGAAGCTATTGGATAGATGTTAAAGAGATTATTGTCAGTCTAAT | 3558 | | | | | | | |
| Qy | 918 | GTTGATATCATACCCCTTGATAAAGCCTTGCCCTCATGACATTTGTAACAAATTAATGAT | 977 | | | | | | | |
| Db | 3559 | GTAGATATGTTAGTCTTGAAGAGTCATTCGCGGAAGAGCTTGTGTTAAAGAGATAATGAT | 3618 | | | | | | | |
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| Qy | 1158 | GCAAGAGCTACAGCAGAACTTCTAGATCTTGACATTTGCTGCTGATATTAAATCAAAATCA | 1217 | | | | | | | |
| Db | 3787 | GTGAAGACCGCAACAGATCTTTTAAACATTGATCTTGGCGATGTCACCATAGGAATCCG | 3846 | | | | | | | |

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| QY | 1218 | AGGGATACACGGTCTGCATCTGTCAGCCATGAGGAAGAGCCTAAATTTAGTGTCC | 1277 |
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| Db | 4087 | CCTAGAGATGTTCTCTCTCTTTTGCAGTGGCGCGCATGAATTTGAAGATGACGCTGCTC | 4146 |
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| Db | 4147 | GATCTTGAATAAGAGGT 4164 | |
| RESULT 14 | | | |
| LOCUS | ATU87794 | | |
| DEFINITION | Arabidopsis thaliana transcription factor inhibitor I kappa B homolog (nim1) gene, complete cds. | | |
| ACCESSION | U87794 | | |
| VERSION | U87794.1 | GI:1916911 | |
| KEYWORDS | thale cress. | | |
| SOURCE | Arabidopsis thaliana | | |
| ORGANISM | Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis. | | |
| REFERENCE | 1 (bases 1 to 5655) | | |
| AUTHORS | Ryals,J., Weymann,K., Lawton,K., Friedrich,L., Ellis,D., Steiner,H.-Y., Johnson,J., Delaney,T.P., Jesse,T., Vos,P. and Uknes,S. | | |
| TITLE | The Arabidopsis NIM1 protein shows homology to the mammalian transcription factor inhibitor I kappa B | | |
| JOURNAL | Plant Cell 9 (3), 425-439 (1997) | | |
| MEDLINE | 97246324 | | |
| REFERENCE | 2 (bases 1 to 5655) | | |
| AUTHORS | Ryals,J., Weymann,K., Lawton,K., Friedrich,L., Ellis,D., Steiner,H.-Y., Johnson,J., Delaney,T.P., Jesse,T., Vos,P. and Uknes,S. | | |
| TITLE | Direct Submission | | |
| JOURNAL | Submitted (29-JAN-1997) Fungicides, Novartis BGC, 3054 Cornwallis Road, Research Triangle Park, NC 27709, USA | | |
| FEATURES | Location/Qualifiers | | |
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| | /db_xref="taxon:3702" | | |
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| BASE COUNT | 1758 a | 1014 c | 1069 g | 1814 t | |
| ORIGIN | | | | | |
| Query Match | 15.0%; | Score 326.8; | DB 8; | Length 5655; | |
| Best Local Similarity | 58.6%; | Pred. No. 2.7e-73; | | | |
| Matches 714; | Conservative | 0; | Mismatches 392; | Indels 112; | Gaps 4; |
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| Db | 2962 | CGCCGATGATTTCTACACGAGCGCTAAGCTTGTCTCTCCAC | 3018 | | |
| QY | 475 | CGGTGCACCGGTGCATTTTGTGCGGAGGAGTCCGTTCTTTAAGAAATTTGTCTCGGTA | 534 | | |
| Db | 3019 | CTTTCACCGGTGCGTTTGTTCAGGAGAGCTCTTCTTCAAGAGCGCTTTAGCGCGC | 3078 | | |
| QY | 535 | AAAAGGAGAAGATAGTACT | 576 | | |
| Db | 3079 | CTAAGAAGGAGAAAGACTCCAACAACACCGCGCGTGAAGCTCGAGCTTAAGGAGATTG | 3138 | | |
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| QY | 637 | GTAAGTTAGGCTTCACTACCTAAAGATGTGTGTTGTGTGGACAATGACTCTCTCATG | 696 | | |
| Db | 3199 | GCAGAGTGAGACCGCGCTAAAGGAGTTTCTGTAATGCGACACAGAAATTCCTCCACG | 3258 | | |
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| QY | 918 | GTTGATATCATAAACCTTGATAAAGCCTTGCCCTCATGACATTTGTAACAAATTTACTGAT | 977 | | |
| Db | 3559 | GTAAGATATGGTTAGTCTTGAAAGTCATTTGCGGAAGAGCTTGTATAAGAGATAATTGAT | 3618 | | |
| QY | 978 | TCACGAGCGGAATTTGGTCTACAAAGGCTGAAAGCAACGGTTTTCCTGATAACATGTT | 1037 | | |
| Db | 3619 | AGACGTAAGAGCTTGGTTTGGAGTACTTAAAGTAAAG-----AAACATGTC | 3666 | | |
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| Db | 3667 | TCGAATGTACATAAGGCATTTGACTCGGATGATATTGAGTTAGTCAAGTTCCTTTTGA | 3726 | | |
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| Db | 3727 | GAGGATCACACCAATCTAGATGATGCGTGTCTCTTCATTTTCGCTGTTGTCATATTGCAAT | 3786 | | |
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[illegible]

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Job time : 3175.43 secs

GenCore version 5.1.3
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OM nucleic - nucleic search, using sw model

Run on: October 7, 2002, 21:14:44 ; Search time 235.181 Seconds
(without alignments)
15856.428 Million cell updates/sec

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Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 1736436 seqs, 858457221 residues

Total number of hits satisfying chosen parameters: 3472872

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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| 3 | 1380.4 | 63.6 | 1731 | 21 | AAA97191 | L. esculentum NIM1 |
| 4 | 781.2 | 36.0 | 2299 | 21 | AAA97229 | B. vulgaris NIM1 h |
| 5 | 620.6 | 28.6 | 659 | 21 | AAA97211 | N. tabacum NIM1 ho |
| 6 | 581.6 | 26.8 | 2024 | 21 | AAAC37765 | Arabidopsis thalia |
| 7 | 578.4 | 26.6 | 2104 | 19 | AAV16851 | Arabidopsis thalia |
| 8 | 576.8 | 26.6 | 2011 | 19 | AAV46274 | A. thaliana NIM-1 |
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| 10 | 576.8 | 26.6 | 2011 | 19 | AAV43661 | Non-inducible immu |
| 11 | 575.4 | 26.5 | 653 | 21 | AAA97219 | S. tuberosum NIM1 |
| 12 | 563.4 | 25.9 | 2040 | 22 | AAA81457 | Rice NPR1 homologu |
| 13 | 558.6 | 25.7 | 2194 | 22 | AAA61047 | Rice putative nega |
| 14 | 549.4 | 25.3 | 1597 | 19 | AAV46276 | A. thaliana N-term |
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| 17 | 517.4 | 23.8 | 1608 | 19 | AAV46277 | A. thaliana C-term |
| 18 | 517.4 | 23.8 | 1608 | 19 | AAV43663 | Non-inducible immu |
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| 23 | 490 | 22.6 | 1194 | 19 | AAV43664 | Non-inducible immu |
| 24 | 467.2 | 21.5 | 1740 | 21 | AAA97192 | B. napus NIM1 homo |
| 25 | 432.4 | 19.9 | 498 | 21 | AAA97215 | L. esculentum NIM1 |
| 26 | 391.8 | 18.0 | 4270 | 22 | AAH43377 | DNA sequence enco |
| 27 | 362.4 | 16.7 | 2673 | 21 | AAA97234 | N. tabacum NIM1 ho |
| 28 | 330 | 15.2 | 498 | 21 | AAA97216 | B. vulgaris NIM1 h |
| 29 | 328.8 | 15.1 | 2844 | 21 | AAA97230 | H. annuus NIM1 homo |
| 30 | 326.8 | 15.0 | 5655 | 19 | AAV46273 | A. thaliana NIM-1 |
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| 35 | 326.8 | 15.0 | 9919 | 19 | AAV04631 | Arabidopsis thalia |
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| 37 | 317 | 14.6 | 2368 | 22 | AAC84340 | Rice Nph1 cDNA seq |
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| 43 | 300.8 | 13.8 | 2171 | 21 | AAC46995 | Arabidopsis thalia |
| 44 | 290.4 | 13.4 | 1725 | 21 | AAA97232 | A. thaliana NIM1 h |
| 45 | 288 | 13.3 | 498 | 21 | AAA97217 | H. annuus NIM1 homo |

ALIGNMENTS

RESULT 1

AAV16852
ID AAV16852 standard; cDNA; 2172 BP.

XX AAV16852;

XX 17-AUG-1998 (first entry)

XX Nicotiana glutinosa NPR1 homologue.

DE NPR1 gene; acquired resistance; disease; plant pathogens; bacteria;
XX mycoplasma; fungi; insects; nematodes; viruses; viroids;
XX transgenic; homologue; ds.

OS Nicotiana glutinosa.

XX Key Location/Qualifiers

FT CDS 240..2006

FT FT /*tag= a

FT FT /product= acquired resistance polypeptide

FT FT /note= NPR1 homologue

XX WO9806748-A1.

PN 19-FEB-1998.

XX 08-AUG-1997; 97WO-US13994.

XX 16-MAY-1997; 97US-0046769.

PR 09-AUG-1996; 96US-0023851.

PR 10-JAN-1997; 97US-0035166.

XX

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Db 2161 AAAAAAAAAA 2172

RESULT 2

AAA97190

ID AAA97190 standard; cDNA; 1767 BP.

XX AAA97190;

XX 25-JAN-2001 (first entry)

XX N. tabacum NIM1 homologue coding sequence SEQ ID NO: 1.

DE Systemic acquired resistance; SAR; signal transduction cascade;

KW disease resistance; tobacco; tomato; canola; sunflower; sugarbeet;

KW potato; ss.

XX Nicotiana tabacum.

XX Key Location/Qualifiers

FH CDS 1..1767

FT /*tag= a

FT /product= "NIM1 homologue"

XX WO200053762-A2.

XX 14-SEP-2000.

XX 07-MAR-2000; 2000WO-EP01978.

XX 09-MAR-1999; 99US-0265149.

XX (NOVS) NOVARTIS AG.

PA (NOVS) NOVARTIS-ERFINDUNGEN VERW GES MBH.

XX Salmeron JM, Weislo LJ, Willits MG, Mengiste T;

XX WPI; 2000-594322/56.

XX P-PSDB; AAB27301.

XX Novel plant genes for enhancing systemic acquired resistance gene

PT expression and broad spectrum disease resistance in plants, are

PT homologues of Arabidopsis NIM1 gene -

XX

PS

XX

CC The present invention is concerned with the isolation of NIM1 homologues
CC and their coding sequences from Arabidopsis thaliana, Brassica napus,
CC Nicotiana tabacum, Lycopersicon esculentum, Beta vulgaris, Helianthus
CC annuus and Solanum tuberosum. NIM1 is one of the proteins involved in the
CC signal transduction cascade leading to systemic acquired resistance (SAR)
CC in plants. This gives the plants an increased resistance to disease. The
CC gene and protein can be used to produce transgenic plants resistant to
CC diseases caused by viruses, such as tobacco or cucumber mosaic virus,
CC ringspot virus, peralargonium leaf curl virus, red clover mottle virus,
CC tomato bushy stunt virus, fungi, including Phytophthora parasitica and
CC Peronospora tabacina, bacteria such as Pseudomonas syringae and P.
CC tabaci, insects, including aphids and lepidoptera and nematodes such as
CC Meloidogyne incognita. In particular they can be used against disease
CC organisms of maize.

SQ Sequence 1767 BP; 512 A; 328 C; 434 G; 493 T; 0 other;

Query Match

Best Local Similarity 81.4%; Score 1767; DB 21; Length 1767;

Matches 1767; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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QY 300 TGCTGCATCGCGCGGCATGACTGAATTTTCTCGCGGAGACTTCGCGGGGAGATC 359

Db 61 TGCTGCATCGCGCGGCATGACTGAATTTTCTCGCGGAGACTTCGCGGGGAGATC 120

QY 360 ACTTCAGCTGAAACGCTATCGGAACACTGGAATCTTCTCGCGGAGACTTCGCGGGGAG 419

Db 121 ACTTCAGCTGAAACGCTATCGGAACACTGGAATCTTCTCGCGGAGACTTCGCGGGGAG 180

QY 420 TTTGACTACTTCGCGGACGCTAAGCTTGTGTGTTTTCGCGCCCGTGTAAAGAAATCCGGTG 479

Db 181 TTTGACTACTTCGCGGACGCTAAGCTTGTGTGTTTTCGCGCCCGTGTAAAGAAATCCGGTG 240

QY 480 CACCGGTGCATTTTGTGCGGAGAGTCCGTTCTTTAAGAAATTTGTCTCGGGTAAAG 539

Db 241 CACCGGTGCATTTTGTGCGGAGAGTCCGTTCTTTAAGAAATTTGTCTCGGGTAAAG 300

QY 540 GAGAAGAATAGTAGTAAGTGAATTCGAAGAGGTGATGAAGAGCATGAGGTGAGCTAT 599

Db 301 GAGAAGAATAGTAGTAAGTGAATTCGAAGAGGTGATGAAGAGCATGAGGTGAGCTAT 360

QY 600 GATGCTGTAATGAGTGTATTGGCTTATTTGTATAGTGGTAAAGTTAGGCCCTTCACCTAAA 659

Db 361 GATGCTGTAATGAGTGTATTGGCTTATTTGTATAGTGGTAAAGTTAGGCCCTTCACCTAAA 420.

QY 660 GATGCTGCTGTTGTGCGCAATGACTGCTCATGTGGCTTGTAGGCCAGCTGTGGCA 719

Db 421 GATGCTGCTGTTGTGCGCAATGACTGCTCATGTGGCTTGTAGGCCAGCTGTGGCA 480

QY 720 TTCCTGTTGAGGTTTTGTACACATCATTTACCTTTTCAGATCTCTGAATTTGGTTGACAAG 779

Db 481 TTCCTGTTGAGGTTTTGTACACATCATTTACCTTTTCAGATCTCTGAATTTGGTTGACAAG 540

QY 780 TTTCAGAGACACCTACTGGATATTTTCACAAAATGTCAGCAGACGATGTAATGATGGTT 839

Db 541 TTTCAGAGACACCTACTGGATATTTTCACAAAATGTCAGCAGACGATGTAATGATGGTT 600

QY 840 TTATCTGTTGCAACATTTTGTGTAAGCATGCGAGAGATTCGTTTCAAGCTGCATTGAG 899

Db 601 TTATCTGTTGCAACATTTTGTGTAAGCATGCGAGAGATTCGTTTCAAGCTGCATTGAG 660

QY 900 ATTATTGCTCAAGTCTAATGTTGATATCATAAACCTTGTATAAAGCCTTGCTCATGACATT 959

Db 661 ATTATTGCTCAAGTCTAATGTTGATATCATAAACCTTGTATAAAGCCTTGCTCATGACATT 720

QY 960 GTAAACAAATTTACTGATTCACGAGCGGAATTTGGTCTTACAAGGGCTGTAAGCAACGGT 1019

Db 721 GTAAACAAATTTACTGATTCACGAGCGGAATTTGGTCTTACAAGGGCTGTAAGCAACGGT 780

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QY 1320 GGAAGAAAGCACTTCAATGCCCAAGAGGCTCACTAGGCTTGTGATTTTCAGTAACTCT 1379
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QY 1380 CCGGAGGAGGAAAAATCTGCTTCGAATGATCGGTTTATGATTTGATTTCTGGAGCAAGCA 1439
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QY 1560 ATGGAAGCTTAAAGTTGCAATGACATTTGCTCAAGTTGATGGCACTTCTGAGTTCCCACTG 1619
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Db 1321 ATGGAAGCTTAAAGTTGCAATGACATTTGCTCAAGTTGATGGCACTTCTGAGTTCCCACTG 1380
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    |||
QY 1620 GCTAGCATCGGCAAAAGATGCTTAATGCACAGAGGACAACAGTAGATTTGAACGAGGCT 1679
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Db 1381 GCTAGCATCGGCAAAAGATGCTTAATGCACAGAGGACAACAGTAGATTTGAACGAGGCT 1440
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QY 1680 CTTTTCAAGATAAAGAGAGGACACTTGAATCGGCTTAGAGCACTCTCTAGAACTGTAGAA 1739
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Db 1441 CTTTTCAAGATAAAGAGAGGACACTTGAATCGGCTTAGAGCACTCTCTAGAACTGTAGAA 1500
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Db 1501 CTTGAAAACGCTTCTTTCCAGGTTGTTTCAGAAAGTTCTTAAATAAGATCATGATGCTGAT 1560
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QY 1800 GACTTGTCTGAGATAGCTTACATGCGGGAATGATAGCGGAGAGAGCGCTCACTGAAGAG 1859
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QY 1860 CAAAGGTACATGGAATCTCAAGAAATCTGACTAAAGCAATTCACCTGAGGATAAAGAGAA 1919
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Db 1681 TATGATAAGACTTAACAACATCTCCATCTTGTTCCTCTACATCTAAGGGAGTAGATAAG 1740
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QY 1980 CCCAATAAGCTCCCTTTTAGGAAATAG 2006
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RESULT 3

AAA97191

ID AAA97191 standard; cdNA; 1731 BP.

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XX AAA97191;
XX AC
XX DT
XX XX
XX 25-JAN-2001 (first entry)
XX
XX DE L. esculentum NIM1 homologue coding sequence SEQ ID NO: 3.
XX
XX KW Systemic acquired resistance; SAR; signal transduction cascade;
XX KW disease resistance; tobacco; tomato; canola; sunflower; sugarbeet;
XX KW potato; ss.
XX
XX OS Lycopersicon esculentum.
XX
XX FH Key Location/Qualifiers
XX FT 1..1731
XX FT /*tag= a
XX FT /product= "NIM1 homologue"
XX
XX XX W0200053762-A2.
XX
XX PD 14-SEP-2000.
XX
XX PF 07-MAR-2000; 2000WO-BP01978.
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XX PR 09-MAR-1999; 99US-0265149.
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XX PA (NOVS ) NOVARTIS AG.
XX PA (NOVS ) NOVARTIS-ERFINDUNGEN VERW GES MBH.
XX
XX PI Salmeron JM, Weislo LJ, Willits MG, Mengiste T;
XX
XX DR WPI; 2000-594322/56.
XX DR P-PSDB; AAB27302.
XX
XX PT Novel plant genes for enhancing systemic acquired resistance gene
XX PT expression and broad spectrum disease resistance in plants, are
XX PT homologues of Arabidopsis NIM1 gene -
XX
XX PS Claim 3; Page 73-75; 152pp; English.
XX
XX CC The present invention is concerned with the isolation of NIM1 homologues
XX CC and their coding sequences from Arabidopsis thaliana, Brassica napus,
XX CC Nicotiana tabacum, Lycopersicon esculentum, Beta vulgaris, Helianthus
XX CC annuus and Solanum tuberosum. NIM1 is one of the proteins involved in the
XX CC signal transduction cascade leading to systemic acquired resistance (SAR)
XX CC in plants. This gives the plants an increased resistance to disease. The
XX CC gene and protein can be used to produce transgenic plants resistant to
XX CC diseases caused by viruses, such as tobacco or cucumber mosaic virus,
XX CC ringspot virus, pelargonium leaf curl virus, red clover mottle virus,
XX CC tomato bushy stunt virus, fungi, including Phytophthora parasitica and
XX CC Peronospora tabacina, bacteria such as Pseudomonas syringae and P.
XX CC tabaci, insects, including aphids and lepidoptera and nematodes such as
XX CC Meloidogyne incognita. In particular they can be used against disease
XX CC organisms of maize.
XX
XX SQ Sequence 1731 BP; 508 A; 318 C; 408 G; 497 T; 0 other;
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Query Match 63.6%; Score 1380.4; DB 21; Length 1731;
Best Local Similarity 88.4%; Pred. No. 0;
Matches 1556; Conservative 0; Mismatches 171; Indels 33; Gaps 4;
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QY 307 TCGCGCGCGCATGACTGAATTTTCTCGCGGAGACTTCGCGCGGAGAGTCACTTCAC 366

Db 65 TGAACGAAT-----CGGAACCTTCACCTGGCAGCGTCAATCCC 103

QY 367 TGAACGCCTATCGGAACACTGGAATCTATCTTCGATGCGTCTTTGCCGAGATTTTGACT 426

Db 104 TCAAACGCTATCAGAAACACTAGAGTCTATCTTCGATGCGTCTGCGCGGAGTTTGACT 163


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QY 487 GCATTTTGTGCGGAGGAGTCCGTTCTTTAAGAAATTTGTCTGCGGTAAAGAGGAGAAGA 546
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Db 335 TGGTCAGTGTGCTCGCCTATTGTGTATAGTGGAAAAGTTAGCCCTGCATCTFAAAGATGTGT 394
QY 667 GTGTTTGTGCGACAATGACTGCTCATGTGGCTTGTAGGCCAGCTGTGGCAATTCCTGG 726
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QY 727 TTGAGGTTTGTACACATCATTTACCTTTTCAGATCTCTGAATGGTGTGACAAAGTTTCAGA 786
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Db 455 TTCAGTGTGTACGATCTCTTACCTTTTCAGATCTCTCAATTTGGTGCACAAGTTTCAGA 514
QY 787 GACACCTACTGGATATTCTTGACAAAACCTGCAGCAGCATGTAATGATGGTTTTATCTG 846
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Db 515 GACACCTATTGGATATTCTTGACAAAACCTGTAGCAGATGATGTAATGATGGTTTTATCCG 574
QY 847 TTGCAACATTTTGGTTAAAGCATGCGAGAGATTGCTTTCAAGCTGCATTTGAGATATTG 906
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QY 1147 CGTATTCGATGCAAGACTACAGCAAACTTCTAGATCTTTGCACCTTGTCTGATATTAAATC 1206
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Db 875 CATATTGCGATGCAAGACTACAGCAAACTTTTAGATCTTTCACTTGTCTGATGTTAATC 934
QY 1207 ATCAAAATTTCAAGGGATACACGGTGTGATGTTGCGAGCCATGAGAAAGACCTTAA 1266
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Db 995 TTATAGTGTCCCTTTTAAACCAAGAGAGCTAGACCTTCTGTATCTGACATCCGATGGCAAA 1054
QY 1327 AAGCACTTCAAAATCGCCAAGAGGCTCAC TAGGCTTGTGGATTTTCAGTAAAGCTTCCGGAGG 1386
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Db 1055 AAGCACTTCAAAATGCTAAGAGGCTCAC TAGGCTTGTAGATTTTACCAGCTCTACAGAGG 1114
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Db 1175 GAGATCCACTACTAGGAGAAAGCTTCATATCTTCTGCTATGGCAGCGGATGATTTCCGTA 1234
QY 1507 TGAAGCTGTTATACCTTGAAATATAGATTGGCTGGCTTAAACTCCCTTTTCCAAATGGAAG 1566
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Db 1235 TGAAGCTGTTATACCTTGAAATATAGATTGGTCTGGCTAAACTCCTTTTTCCTCATGGAAG 1294
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Db 1415 AGATGAAAGAGGAGCACTTGAATCGGCTTTAGGCTCTCTCTAGAACTGTGGAACCTGGAA 1474
QY 1747 AACGCTTCTTCCACGCTTGTTCAGAAAGTTCTAAATAAGATCATGGATGCTGATGACTTGT 1806
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Db 1475 AACGGTCTTCTTCCACGCTTGTTCAGAAAGTTCTAAATAAGATCATGGATGCTGATGACTTGT 1534
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Db 1535 CTGAGATAGCTTACATGGGGAATGATACAGTAGAAGCGCTCAACTGAAGAAGCAAGGT 1594
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QY 1927 AGACTAACAACATCTCCTCATCTTGTTCCTCTACATCTAAGGAGTAGATAGCCCAATA 1986
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RESULT 4
AAA97229
ID AAA97229 standard; cDNA; 2299 BP.
XX
AC AAA97229;
XX
DT 25-JAN-2001 (first entry)
XX
DE B. vulgaris NIM1 homologue coding sequence SEQ ID NO: 63.
XX
KW Systemic acquired resistance; SAR; signal transduction cascade;
KW disease resistance; tobacco; tomato; canola; sunflower; sugarbeet;
KW potato; ss.
XX
OS Beta vulgaris.
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PN WO200053762-A2.
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PD 14-SEP-2000.
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PF 07-MAR-2000; 2000WO-EP01978.
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PR 09-MAR-1999; 99US-0265149.
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PA (NOVS ) NOVARTIS AG.
XX
PA (NOVS ) NOVARTIS-ERFINDUNGEN VERW GES MBH.
XX
PI Salmeron JM, Weislo LJ, Willits MG, Mengiste T;
XX WPI; 2000-594322/56.
XX
DR P-PSDB; AAB27324.
```

xx Novel plant genes for enhancing systemic acquired resistance gene
PT expression and broad spectrum disease resistance in plants, are
PT homologues of Arabidopsis NIMI gene -
xx
xx
xx Claim 3: Page 127-130; 152pp; English.
xx The present invention is concerned with the isolation of NIMI homologues
CC and their coding sequences from Arabidopsis thaliana, Brassica napus,
CC Nicotiana tabacum, Lycopersicon esculentum, Beta vulgaris, Helianthus
CC annuus and Solanum tuberosum. NIMI is one of the proteins involved in the
CC signal transduction cascade leading to systemic acquired resistance (SAR)
CC in plants. This gives the plants an increased resistance to disease. The
CC gene and protein can be used to produce transgenic plants resistant to
CC diseases caused by viruses, such as tobacco or cucumber mosaic virus,
CC ringspot virus, pelargonium leaf curl virus, red clover mottle virus,
CC tomato bushy stunt virus, fungi, including Phytophthora parasitica and
CC Peronospora tabacina, bacteria such as Pseudomonas syringae and P.
CC tabaci, insects, including aphids and lepidoptera and nematodes such as
CC Meloidogyne incognita. In particular they can be used against disease
CC organisms of maize.
xx
xx Sequence 2299 BP; 644 A; 483 C; 510 G; 662 T; 0 other;
Query Match 36.0%; Score 781.2; DB 21; Length 2299;
Best Local Similarity 67.3%; Pred. No. 3.1e-201;
Matches 1186; Conservative 0; Mismatches 528; Indels 48; Gaps 4;
QY 247 ATAGTAGGACTGGTTTCTGATTCGAATGACATCAGCGGAGCAGTACTATATGCTGCA 306
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DB 204 TCGCGCAACAACACTACACAACAACCGCGCAGAAAACCTCTCTCTTACTCCCG 263
QY 355 AGATFACCTCAGTAAACGGCTATCGGAACACTGGAATCTATCTCGATGC-----GT 408
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QY 529 GCGTAAAGAGAGAGAGATAGTAGTAAGTGGAAATGAGGAGGTGATGAAGAGC--- 585
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QY 688 GCTCTCATGTGGCTGTAGCGGACGCTGCGATTCCTGGTTGAGTGTTCACACATCAT 747
DB 624 GCTCTCATGAAGCTGTGCGTCTGCTGTTGATTTGTGTTGAGGTTCTCTATTGCTCTC 683
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DB 1104 CCAGGAGCTTCTTGAGCTTGGGCTTGCGAGATGTTAATCTTAGAAATCTAAGGGGTCA 1163
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DB 1575 CACGAAGAAATCGCGTGGACTTGAATGAGGCTCCCTTTATATTGAAAGAGGAGCATTTGC 1634
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DB 1635 AGAGATGAAAGCACTGCTAAAACCTGTTGAGCTTGGCAAGCGTTTCTTCCAGCTGCT 1694
QY 1768 CAGAAAGTTCTAAATAGATCATGGATGCTGATGACTTGTCTGAGATAGCTTACATGGGA 1827
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QY 1888 TGACTTAAGCATCTACTGAGGATTAAGAGAAATATGATAAGACTAACCAACTCTCCTCAT 1947
DB 1815 TAACTAAGGCTTTTACAGAGGACAAAGAGAGAGTTTGACCGCTTACATATTATCATCATCGT 1874
QY 1948 CTTGTTCTCTACATCTAAGGG 1969

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Db 1875 CGTCGTCGCTGACTCAATGGG 1896
RESULT 5
AAA97211
ID AAA97211 standard; DNA; 659 BP.
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AC AAA97211;
XX
XX 25-JAN-2001 (first entry)
XX
DE N. tabacum NIM1 homologue coding sequence SEQ ID NO: 23.
XX
XX Systemic acquired resistance; SAR; signal transduction cascade;
KW disease resistance; tobacco; tomato; canola; sunflower; sugarbeet;
KW potato; ds.
XX
XX Nicotiana tabacum.
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XX Key Location/Qualifiers
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XX 07-MAR-2000; 2000WO-EP01978.
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XX 09-MAR-1999; 99US-0265149.
XX
XX (NOVS ) NOVARTIS AG.
PA (NOVS ) NOVARTIS-ERFINDUNGEN VERW GES MBH.
XX
XX Salmeron JM, Weislo LJ, Willits MG, Mengiste T;
XX
XX WPI; 2000-594322/56.
DR
DR P-PSDB; AAB27308.
XX
XX Novel plant genes for enhancing systemic acquired resistance gene
PT expression and broad spectrum disease resistance in plants, are
PT homologues of Arabidopsis NIM1 gene -
XX
XX Claim 3; Page 102-103; 152pp; English.
XX
XX The present invention is concerned with the isolation of NIM1 homologues
CC and their coding sequences from Arabidopsis thaliana, Brassica napus,
CC Nicotiana tabacum, Lycopersicon esculentum, Beta vulgaris, Helianthus
CC annuus and Solanum tuberosum. NIM1 is one of the proteins involved in the
CC signal transduction cascade leading to systemic acquired resistance (SAR)
CC in plants. This gives the plants an increased resistance to disease. The
CC gene and protein can be used to produce transgenic plants resistant to
CC diseases caused by viruses, such as tobacco or cucumber mosaic virus,
CC ringspot virus, pelargonium leaf curl virus, red clover mottle virus,
CC tomato bushy stunt virus, fungi, including Phytophthora parasitica and
CC Peronospora tabacina, bacteria such as Pseudomonas syringae and P.
CC tabaci, insects, including aphids and lepidoptera and nematodes such as
CC Meloidogyne incognita. In particular they can be used against disease
CC organisms of maize.
XX
XX Sequence 659 BP; 200 A; 124 C; 153 G; 182 T; 0 other;
SQ
Query Match 28.6%; Score 620.6; DB 21; Length 659;
Best Local Similarity 96.4%; Pred. No. 5.8e-158;
Matches 635; Conservative 0; Mismatches 24; Indels 0; Gaps 0;
QY 891 TGCATTGAGATTATTGCTAAGTCTAATGTTGATATCATCAACCTTGTATAAGCCCTTGCCCT 950
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Db 1 TGCATGAGATTATTGCTAAGTCTAATGTTGATATCATCAACCTTGTATAAGCCCTTGCCCT 60
QY 951 CATGACATTGTAACAAATTAATCTGATTCACGAGGGAACTTGGTCTACAGGGCCTGAA 1010
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Db 61 CATGACATTGTAACAAATTAATCTGATTCACGAGGAGAACTTGGTCTACAGGGCCTGAA 120
QY 1011 AGCAACGGTTTTCCTGATAAACAATGTTAAGAGGATACATAGGGCATTTGGATTCTGATGAT 1070
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
Db 121 AGCAATGGTTTTCCTGATAAACAATGTTAAGAGGATACATAGGGCATTTAGATTCTGATGAT 180
QY 1071 GTTGAATTAATCAAAATGTTGCTAAGAGAGGGGCATCTACTCTAGATGATCATATGCT 1130
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
Db 181 GTTGAATTAATCAAAATGTTGCTAAGAGAGGGGCATCTACTCTAGATGATCATATGCT 240
QY 1131 CTCCATTATGCTGATAGCGTATTGCGATGCAAAAGACTACAGCAGAACTTCTAGATCTTGCA 1190
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
Db 241 CTCCACTATGCTGTAGCATATTGCGATGCAAAAGACTACAGCAGAACTTCTAGATCTTGCA 300
QY 1191 CTTGCTGATATTAAATCATCAAAATTCAGGGGATACACGGTCTGCATGTTTGCAGCCATG 1250
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
Db 301 CTTGCTGATGTTAATCATCAAAATTCAGAGGATACACAGTCTGCATGTTGACCCATG 360
QY 1251 AGGAAAGAGCCCTAAAATTTAGTGTCCCTTTTAAACCAAGGAGCTAGACCTTCTGATCTG 1310
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Db 361 AGGAAAGAGCCCTAAAATTTAGTGTCCCTTTTAAACCAAGGAGCTAGACCTTCTGATCTG 420
QY 1311 ACATCCGATGGAAGAAAGCACTTCAAAATCGCCAAAGAGGCTCAGTGTGTTGGATTTC 1370
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
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Db 481 ACTAAGTCTCCAGAGGAGGAAATCTGTTGCAAGAGTCCGTTATGCAATTTGAGATTCTG 540
QY 1431 GAGCAAGCAGAAAGAGAGACCCCTCTGCTAGGAGAAGCTTCTGTATCTCTTGTATGGCA 1490
||||| ||||||| ||||||| ||||||| ||||||| ||||||| ||||||| |||||||
Db 541 GAGCAAGCAGAAAGAGAGATCCACTGCTAGGAGAAGCTTCTGTATCTCTTGTATGGCG 600
QY 1491 GCGGATGATTTGCGTATGAAGCTGTTATACCTTGAATAAGATTGGCTGGCTAAACT 1549
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RESULT 6
AAC37765
ID AAC37765 standard; DNA; 2024 BP.
XX
AC AAC37765;
XX
XX 17-OCT-2000 (first entry)
XX
XX Arabidopsis thaliana DNA fragment SEQ ID NO: 18587.
XX
KW Hybridisation assay; genetic mapping; gene expression control;
KW protein identification; signal transduction pathway;
KW metabolic pathway; promoter; termination sequence; ss.
XX
OS Arabidopsis thaliana.
XX
PN EP1033405-A2.
XX
XX 06-SEP-2000.
XX
XX 25-FEB-2000; 2000EP-0301439.
XX
XX 25-FEB-1999; 99US-0121825.
PR 05-MAR-1999; 99US-0123180.
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Db 1283 CTTTTCAGTGGCGCCGCGAATGAAGATGAGCGTCTCGATCTTGAAAATAGAGTTG 1342
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Db 1343 CACTTGTCTCAAGCTCTTTTCCACGGAAGCACAAAGCTGCAATGGAGATCCCGAAATGA 1402
QY 1597 ATGGCACTTCTGAGTTCCTCACTGGCTAGCATCG---GCAAAAAGATGGCTTAATGCACAGA 1653
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QY 1654 GCACACACGTAGATTGACGAGGCTCCTTCAAGATAAAAGAGGAGCACATTGAATCGGC 1713
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QY 1774 TTCTAAATAAGATCATGATGCTGTAGTACTGTCTGAGATAGCTTACATGGGGGAATGATA 1833
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QY 1834 CGSCAGAAGAGCGTCAACTGAAGAAGCAAAAGGTACATGGAACCTTCAAGAAATTTCTGACTA 1893
Db 1643 CTGCTGAGAAACGACTACAAAGAAGCAAAAGGTACATGGAATGCAAGACACACTAAGA 1702
QY 1894 AAGCATTCACCTGAGGATAAAGAAATATGATAAGACTTAACAACATCTCCTCATCTTTGTT 1953
Db 1703 AGGCCTTTAGTCAGGACAATTTGGAATTTAGGAAATTTGTCCCTGACAGATTGCGACTTCTT 1762
QY 1954 CQTC 1957
Db 1763 CCAC 1766

RESULT 9
AAV46275
ID AAV46275 standard; cDNA; 2011 BP.
XX
AC AAV46275;
XX
DT 16-OCT-1998 (first entry)
XX
DE A. thaliana NIM-1 cDNA variant #1.
XX
KW NIM-1; noninducible immunity; systemic acquired resistance; SAR;
KW pathogen; disease; protection; immunomodulated; plant; cereal; fruit;
KW vegetable; virus; fungi; bacteria; insect; nematode; microbicide; ss.
OS Arabidopsis thaliana.
OS Synthetic.
XX
FH Location/Qualifiers
CDS 43..1824
FT /*tag= a
FT /product= NIM-1
FT /note= "variant"
FT 205..207
FT mutation
FT /*tag= b
FT /note= "wild type TCC is replaced by GCC"
FT 217..219
FT /*tag= c
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XX
PN WO9829537-A2.
XX
PD 09-JUL-1998.
XX
PF 23-DEC-1997; 97WO-EP07253.
XX
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PR 10-JAN-1997; 97US-0035024.
PR 27-DEC-1996; 96US-0034378.
XX
PA (NOVS ) NOVARTIS AG.
XX
PI Friedrich LB, Molina Fernandez A, Ryals JA, Uknes SJ;
PI
DR WPI; 1998-388119/33.
DR P-PSDB; AAW64436.
XX
PT Protection of immunomodulated plants against pathogens - comprises
PT applying microbicide to provide increase in resistance
XX
PS Claim 11; Page 116-120; 164pp; English.
XX
CC This sequence encodes a variant NIM-1 protein from Arabidopsis
CC thaliana. This protein is used in a method resulting in the protection of
CC an immunomodulated plant having a first level of resistance and involves
CC treatment with at least 1 microbicide that confers a second level of
CC resistance, such that the plants have a third level of resistance greater
CC than the sum of the first two levels. The method can be applied to a wide
CC variety of plants (cereals, fruits, oilseeds, vegetables etc.) to protect
CC against viruses, fungi, bacteria, insects and nematodes. The method
CC provides a high level of resistance and allows a reduction in the amount
CC of microbicide used. Since the process involves two different methods of
CC protection, it is unlikely that the pathogen will develop resistance to
CC the treatment.
XX
SQ Sequence 2011 BP; 563 A; 417 C; 474 G; 557 T; 0 other;

Query Match 26.6%; Score 576.8; DB 19; Length 2011;
Best Local Similarity 62.7%; Pred. No. 7.3e-146;
Matches 981; Conservative 0; Mismatches 547; Indels 36; Gaps 4;

QY 415 CGGAGTTTGACTACTCGCGAGCGCTAAGCTTCTGCTTCGCGCGCTGTAAAGAAATTC 474
Db 218 CGCGGGATGATTTCTACAGCGAGCTAAGCTTGTCTCTCCGAC---GGCGGGAAGTTT 274
QY 475 CGGTGCACCGGTGCATTTTTCGCGGAGGAGTCCGTTCTTTAAAGAAATTTGTTCTCGCGTA 534
Db 275 CTTTCCACCGGTGGTTTTGTGACGAGAGAGCTTTTCTTCAAGAGCGCTTTAGCGCGCG 334
QY 535 AAAAGGAGAAGAATAGTAGT-----AAGTGGAAATTCGAAGGAGTGA 576
Db 335 CTRAGAAGAGAGAAAGACTCCACAACACCCCGCGCTGAAGCTCGAGCTTAAGGAGATTG 394
QY 577 TGAAGAGACATGAGGTGAGCTATGATGCTCTAATGAGTGTATTGGCTTATTGCTATAGTG 636
Db 395 CCAAGGATTACGAAGTCGGTTTCGATTCGGTTGTGACTGTTTGGCTTATGTTACAGCA 454
QY 637 GTAAAGTTAGCGCTTCACTAACAGATGTGTGTGTTGTGGACAATGACTGCTCTCATG 696
Db 455 GCAGAGTGAGACCGCGCCTAAAGAGGTTTCTGAATGCGCAGACGAGAATTGCTGCACG 514
QY 697 TGGCTTGTAGCCACGCTGTGCGATTCTCTGCTTGAAGGTTTGTACACATCATTTACCTTTC 756
Db 515 TGGCTTGC CGCGCGGTGGATTTCATGTTGGAGGTCTCTATTGCGCTTTTCATCTTCA 574
QY 757 AGATCTCTGAATTTGTTGACAAGTTTCAGAGACACCTTACTTGATATTCTTTGACAAAAGT 816
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Db 635 TTATAGAGGACACATTGTTTATCTCAAGCTTGCTAATATATGTTGGTAAAGAGTTGATGA 694
QY 877 GATTGCTTCAAGCTGCATTCAGATTATTCGAACTTAATGTTGATATCATCAACCTTCG 936
Db 695 AGCTATTGGATAGATGTAAGAGAGATTATGTCAGAGTCTAATGTAGATATGTTAGTCTTG 754
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Db 815 TGGAGTAGCTAAAGTAA-----AGAAACATCTCTCGAATGTACATAAGGCAC 862

QY 1057 TGGATTCTTGATGATGTTGAATTACTACAATATTTGCTAAGAGAGGGGATACATACCCCTAG 1116
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QY 1177 TTTCTAGATCTTGCACTTGCTGATATTAAATCATCAAAATTCRAAGGGATACAGGTTGCTGC 1236
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QY 1237 ATGTTGCAGCCATGAGGAAAGACCTTAAATTTAGTGTCCCTTTTAAACCAAGAGACTA 1296
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QY 1297 GACCTTCTGATCTGACATCCGATGGAGAAAAGCACTTCAAAATCGCCGAAGGCTCACTA 1356
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Db 1103 GTGCATCAAGAAGCACTTTGGAAGGTAGAACCCCACTCATGATCGCAAAACAAAGCCACTA 1162

QY 1357 GGCTTGTGATTTCTAGTAAGTCTCCGGAGGAAGGAAAATCTCTCTCGAATGATCGTTTAT 1416
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QY 1537 GCGTGGCTAAATCTCTTTTCCAAATGGAGCTAAAGTTGCAATGACATGCTCTCAAGTTG 1596
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Db 1463 GAACATCACCGGGTGTAAAGATAGCACCTTTTCAGAAATCCTAGAAGAGCATCAAAGTAGAC 1522

QY 1714 TTAGAGCACTCTCTAGAACTGTAGAACTTGGAAAACGCTTCTTCCACGTTGTTTCAGAG 1773
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QY 1954 CCTC 1957
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Db 1763 CCAC 1766
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RESULT 10

AAV43661

ID AAV43661 standard; cDNA; 2011 BP.

XX AC AAV43661;
XX DT 29-SEP-1998 (first entry)
XX DE Non-inducible Immunity-1 (NIM1) protein variant 1 encoding cDNA.
XX KW Non-inducible Immunity-1 gene; NIM1 gene; disease resistance; mutant;
XX KW transgenic plant; SAR; systemic acquired resistance; CIM; pathogen;
XX KW constitutive immunity; agriculture; variant; ss.
XX OS Arabidopsis thaliana.
XX OS Synthetic.
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XX XX 12-DEC-1997; 97WO-EP07012.
XX PD 18-JUN-1998.
XX PF 20-JUN-1997; 97US-0880179.
XX PR 13-DEC-1996; 96US-0033177.
XX PR 27-DEC-1996; 96US-0034379.
XX PR 27-DEC-1996; 96US-0034382.
XX PR 10-JAN-1997; 97US-0034730.
XX PR 10-JAN-1997; 97US-0035021.
XX PR 10-JAN-1997; 97US-0035022.
XX XX (NOVS) NOVARTIS AG.
XX XX Friedrich LB, Hunt MD, Lawton KA, Ryals JA, Steiner HV;
XX PI Uknes SJ;
XX XX WPI; 1998-348536/30.
XX DR P-PSDB; AAW61983.
XX XX Use of non-inducible immunity-1 gene - for transforming plants to
XX PT produce transgenic plants having a broad spectrum disease resistance
XX PS Claim 5; Pages 140-144; 205pp; English.
XX CC This cDNA encodes an altered form of the Arabidopsis thaliana non-
XX CC inducible immunity-1 (NIM1) protein. Sequences shown in AAV43661 to
XX CC AAV43665 represent variants of the NIM1 cDNA. The invention provides a
XX CC chimeric gene comprising a promoter active in plants operatively linked
XX CC to a DNA molecule that encodes an altered form of the NIM1 protein. Plant
XX CC cells stably transformed with a recombinant vector comprising such a
XX CC chimeric gene have a broad spectrum of disease resistance. The altered
XX CC NIM1 proteins act as dominant-negative regulators of the systemic
XX CC acquired resistance (SAR) signal transduction pathway. The transgenic
XX CC plants transformed with an altered NIM1 gene exhibits constitutive SAR
XX CC expression which is higher in the transformed plants than in a wild-type
XX CC plant. The products can be used for producing plants with a broad
XX CC spectrum disease resistance. Overexpression of NIM1 mimics the effects
XX CC of inducer compounds that induce constitutive immunity (CIM) phenotype
XX CC in plants. The inventions can be used with plants such as rice, wheat,
XX CC barley, rye, corn, potato, carrot, sweet potato, sugar beet, bean, pea,
XX CC chikory, lettuce, cabbage, cauliflower, broccoli, turnip, radish,
XX CC spinach, asparagus, onion, garlic, eggplant, pepper, celery, carrot,
XX CC squash, pumpkin, zucchini, cucumber, apple, pear, quince, melon, plum,
XX CC cherry, peach, nectarine, apricot, strawberry, grape, raspberry,
XX CC blackberry, pineapple, avocado, papaya, mango, banana, soybean, tobacco,

| | | | | | | | |
|----|-----------------------|---|---------------------|--------|-----------------|------------|----------|
| XX | Sequence | 2040 BP; | 501 A; | 525 C; | 553 G; | 461 T; | 0 other; |
| SQ | Query Match | 25.9%; | Score 563.4; | DB 22; | Length 2040; | | |
| | Best Local Similarity | 64.3%; | Pred. No. 3.2e-142; | | | | |
| | Matches | 884; | Conservative | 0; | Mismatches 476; | Indels 15; | Gaps |
| Qy | 580 | AAGAGCATGAGGTGACGTATGATGCTGAATAGTGTGATTTGGCTTATTTGTATAGTGGTA | 639 | | | | |
| Db | 356 | AGGAGGTGGAGGTGCGGTACGAGGGCGCTCGCGCTGGTCTCGACTACTCTACAGCGGC | 415 | | | | |
| Qy | 640 | AAGTTAGGCCCTTCACCTAAAGATGTGTGTGTTGTGGCAATGACTGCTCTCATGTGG | 699 | | | | |
| Db | 416 | CGTTCGGCGNACTGCCAAGCGCGGTGCCTCTCGCTCGAGGAGACTGCGCCACGTGG | 475 | | | | |
| Qy | 700 | CTTTGTAGGCCAGCTGTGGCATTTCTCGTTGAGGTTTTGTACACATCATTTACCTTTTACA | 759 | | | | |
| Db | 476 | GGTGCCACCCCGCGCTCGCGTTTCATGGCGCAGGTCTCTTCGCGCGCTCCACCTTCACG | 535 | | | | |
| Qy | 760 | TCCTGNAITGGTTGACAAGTTTTCAGACACACCTACTGGATATTTCTTGACAAATGCGAG | 819 | | | | |
| Db | 536 | TCGCCGAGCTCACCAACCTTTCCAGCGCGTCTCCTTGATGTCTCTGTATGAGGTTGAAG | 595 | | | | |
| Qy | 820 | CAGACGATGTAATGATGGTTTTATCTGTTGCAACATTTGTGTAAGCAGCATGCGAGAGAT | 879 | | | | |
| Db | 596 | TAGATAACCTTCTATTGATCTTATCTGTGTGCCAATTATGCAACAAATCTTGATGAAAC | 655 | | | | |
| Qy | 880 | TGCTTTCAAGCTGCATTTGAGATTTATGTCAAGTCTAATGTTTGATATCATTAACCCTTGATA | 939 | | | | |
| Db | 656 | TGCTTTGAAGATGCCTTGATATGGTAGTCGGGTCAAGCCTTTGACATGATTACTCTTTGAGA | 715 | | | | |
| Qy | 940 | AAGCCTTTCCTCATGACATTTGTAACAAATTTACTGATTCACGAGCGGAACCTTGGTCTAC | 999 | | | | |
| Db | 716 | AGTCATTTGCCTCCAGATGTTATCAAGCAGATTTATGTATGACGACCTTAAGCCTCGGATTA | 775 | | | | |
| Qy | 1000 | AAGGGCCTGAAGCAACGGTTTTTCCTGATAACATGTTTAAGAGATACATAGGCGATTTGG | 1059 | | | | |
| Db | 776 | TTTCACACAGAAAAAAGAGGATTTCTTAACAAACATGTGAGGAGGATACACAGAGCCCTTG | 835 | | | | |
| Qy | 1060 | ATTCTGATGATGTTGAATTTACTACAAATGTTGCTTAAGAGAGGGGCATCTACCTAGATG | 1119 | | | | |
| Db | 836 | ACTCTGACGATGTAGAGCTAGTCAGGATGCTGCTCCTCTGAAGGACAGCAATCTTGATG | 895 | | | | |
| Qy | 1120 | ATGCATATGCTCTCCATTTATGCTGTAGCGTATTTGGATGCAAGAGCTACACGAGAATTC | 1179 | | | | |
| Db | 896 | ATGCGTTTGCACCTGCACCTACGCGCTCGAACATTTGTGACTCCCAAAATACAAACGAGCTT | 955 | | | | |
| Qy | 1180 | TAGATCTTGCACTTGCTGATATTAATCATCAAAATTCAGGGGATACACGGTGTGCGATG | 1239 | | | | |
| Db | 956 | TGATCTCGCACTTCGAGATGTTAATCATAGAAACCCAGAGGTTATATCTTCTTCACA | 1015 | | | | |
| Qy | 1240 | TTGCAGCCATGAGGAAGACCTTAAATTTGATGTCCTCTTTTAACCAAGGAGCTAGAC | 1299 | | | | |
| Db | 1016 | TTGCTGCGAGCGNAGAGCCTTAAATCATTTGCTCTCCCTTTTAACCAAGGGGCTCGAC | 1075 | | | | |
| Qy | 1300 | CTTCTGATCTGACATCCGATGGAAGAAAAAGCACTTCAATTCGCCAAGAGGCTCACTAGGC | 1359 | | | | |
| Db | 1076 | CAGCAGATGTTACATTCGATGGGAGAAAAAGCGGTTCAAATCTCTCAAAAGACTTAACAAAC | 1135 | | | | |
| Qy | 1360 | TTGTGGATTTTCAGTACTGCTCCGGAGGAAGAAAATCTGCTTCGAATGATCGGTTATGCA | 1419 | | | | |
| Db | 1136 | AAGGGGATTTACTTTGGGGTTTACCGAAGAAGAAAACCTTCTCCAAAGATAGTTATGTA | 1195 | | | | |
| Qy | 1420 | TTGAGATTTCTGGACAGCAGAAAGAGAGACCCCTCTGCTAGGAGAAGCTTCTGTATCTC | 1479 | | | | |
| Db | 1196 | TTGAAATACTGGACAGCTGAAAGAAAGGAGCCCAACACTCGGAGAAGCATCAGTTTCTC | 1255 | | | | |
| Qy | 1480 | TTGCTATGGCAGGCGATGATTTTCGCTATGAAGCTGTATACCTTTGAAATAGAGTTGACC | 1539 | | | | |
| Db | 1256 | TTGCAATGGCAGGTGAGAGTCTACGAGGAAGGTTGCTGTATCTTTGAAACCGAGTTGCTT | 1315 | | | | |
| Qy | 1540 | TGGCTAAACTCCTTTTTCCAATGGAAAGCTTAAAGTTTGCATGACATCTCAAGTTTGAAT | 1599 | | | | |

CC be used to find homologous sequences in other plants which have a similar
CC effect.

XX
SQ Sequence 2194 BP; 510 A; 586 C; 617 G; 481 T; 0 other;

Query Match 25.7%; Score 558.6; DB 21; Length 2194;
Best Local Similarity 64.1%; Pred. No. 6.e-141;
Matches 881; Conservative 0; Mismatches 479; Indels 15; Gaps 2;

```
QY 580 AGAGCATGAGGTGAGCTATGATGCTGTAATGAGTGTATTTGGCTTATTTGTATATAGTGA 639
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 483 AGAGGTGGAGGTGCGGTACGAGGGCGCTGCGGCTGGTGTCTGACTACCTTACAGCGGCC 542
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 640 AAGTTAGGCTTTCACCTAAAGATGTGTGTGTTGTGTGGACAATGACGTCTCATGTGG 699
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 543 GGTGCGGCACCTGCCAAGCGGGTGCCTCTGCTGCGAGGAGGACTCGCGCCACGTCG 602
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 700 CTTGTAGGCCAGCTGTGGCATTCCTGGTTGAGTTTGTACACATCATTTACCTTTTACA 759
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 603 GGTGCCACCCCGCGTCGGTTTCATGGCGCAGTCTCTTCGCCGCTCCACCTTCCAGG 662
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 760 TCTCTGAATTGTTGACAAGTTTCAGAGACACCTACTCGATATTTCTTGACAAAACTCGAG 819
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 663 TCGCGGAGCTCACCAACCTCTTCCAGCGCGCTCTCTTGATGTCTTGTATGATAAGGTTGAG 722
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 820 CAGAGCATGTAATGATGTTTATCTGTTGCAACATTTTGGTAAACCATCCGAGAGAT 879
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 723 TAGATAACCTCTATGATCTATCTGTGTCACACTTATGCAACAAATCTTGCATGAAC 782
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 880 TCCTTCAAGCTGCATGAGATTAATGTCAAGTCTTAATGTTGATATCATAAACCTTTGATA 939
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 783 TGCCTTGAAGATGCTTGATATGTTAGTCCGTCAAACTTGACATGATTACTCTTGAGA 842
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 940 AAGCCTTGCCATCACATTTGTAACAATAATCTGATTCACGAGCGGAATCTGCTGTAC 999
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 843 AGTCATGCTCTCCAGATGTTATCAAGCAGATTAATGATGCACGCTTAAGCCTCGGATTA 902
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1000 AAGGCGCTGAAAGCAACGGTTTCTCTGATAAATGTTTAAGAGGATACATAGGCAATGG 1059
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 903 TTTACACGAGAAACAAGGAATTTCTTACAACAATGTGAGGAGATACACAGAGCCCTTG 962
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1060 ATTCGTGATGTTGAAATTAATACTACAATATGTTGCTTAAGAGAGGGGCATACTACCTAGATG 1119
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 963 ACTCTGACGATGTAGAGTAGTCTAGGATGCTGCTCACTGAAAGGACAGACAAATCTTGATG 1022
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1120 ATGCATATGCTCTCATTATGCTGTAGCGTATTCGGATGCAAGACTACACAGCAACTTC 1179
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1023 ATGCGCTTTGCACTGCATACGCGCTCGAACATTTGTGACTCCAAATTAACACCGAGCTT 1082
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1180 TAGATCTTGCACTTGCTGATATTAATCATCAAAATTCGAAGGGGATACACGGTGTGCTGATG 1239
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1083 TGGATCTGCGACTTGCAATGTTAATCATAGAAACCCCAAGAGGTTATATCTGTTCTTACA 1142
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1240 TTGACCCATGAGGAAGAGCCCTAAATTTGATGTCCCTTTTAACCAAGGAGCTAGAC 1299
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1143 TTGCTGCGAGGCGAAGAGAGCTTAAATTCATTTGCTCCCTTTTAACCAAGGGGCTCGGC 1202
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1300 CTTCTGTATCTGACATCCCATGGAAGAAAGCACTTCAAAATCGCCAAGAGGCTCACTAGGC 1359
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1203 CAGCAGATGTTACATTCATGCGGAGAAAGCGGTTTCAAAATCTCAAAAGACTTAACAAAC 1262
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1360 TTGTGGATTTTCAGTAAGTCTCCGGAGGAAGGAAAATCTGCTTCCGAATGATCGGTTATGCA 1419
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1263 AAGGGGATTTACTTTGGGTTTACCGAAGAAGGAAAACCTTCTCCAAAGATAGGTTATGTA 1322
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1420 TTGATATCTGAGCAAGCAAGAGAGACACCTCTGCTAGGAGAGCTTCTGTATCTC 1479
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1323 TTGAATACTGGGACAGCTGAAAGGAGGAGCCACCAACTCGGAGAGAAGCATCAGTTTCTC 1382
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1480 TTGCTATGGCAGGCGATGATTGCGTATGAAGCTGTTTATACCTTTGAAAATAGAGTTGCC 1539
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1383 TTGCAATGGCAGGTGAGAGTCTACGAGAGGTTGCTGTATCTTTGAAAACCGGAGTTGCTT 1442
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
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QY 1540 TGGCTAAACTCCTTTTTTCCAAATGGAAGCTAAAGTTGCAATGGACATTCCTCAAGTTGATG 1599
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1443 TGGCGAGGATTATGTTCCGATGGAGGCAAGAGTAGCAATGGATATTGCTCAAGTGGATG 1502
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1600 GCACCTCTGAGTTCGCCACTGGCTAGCATCGGCAAAAAGATGGCTAATGCACAGAGGACAA 1659
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1503 GAACCTTTGGAAATTTAACTTGGGTTCTGTTGCAAAATCCACCTCTCTGAAAAGACAACGGACAA 1562
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1660 CAGTAGATTTGAACGAGGCTCCTTTTCAAGATAAAAAGAGGAGCACCTTGAATCGGCTTAGAG 1719
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1563 CTGTTGATCTAAATGAAAGTCCCTTTCATATGAAGAAGAACACTTAGCTCGGATGACGG 1622
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1720 CACTCTCTAGAACHTGTAGAACCTTGGAACACGCTTCTTTTCCACGTTGTTCCAGAAAGTTCTAA 1779
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1623 CACTCTCCAAAACAGTAGTGAGCTCGGAAACGCTTTTTTCCGCGCATGTTTGAACAGTGTCTCG 1682
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1780 ATAAGATCATGGTCTGCTGATGACTTGTCTGAGATAGCTTACATGGGGAATGATACGGCAG 1839
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1683 ACAAGATCATGGATGATGA-----AACTGATCGGTTTCCCTCGGAAGAGACACGTCGG 1736
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1840 AAGAGCGCTCAACTGAAGAAGCAAGGTACATGGAACCTTCAAGAAATTTCTGACTAAAAGCAT 1899
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1737 CGGA-----GAAGAGGAAGAGGTTTTCATGACCTGCGAGGATGTTCTTCAGAGGCGAT 1787
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1900 TCACTGAGGATAAAGAAGAATATGAAGACTTAACAAACATCTCCTCATCTTGTTC 1954
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1788 TCCACGAGGACAAAGGAGGAGAAATGACAGTCTCGGGGCTCTCGTCTGCTGTCATC 1842
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
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RESULT 14

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AAV46276
ID AAV46276 standard; cDNA; 1597 BP.
XX AAV46276;
XX AC
XX AC
DT 16-OCT-1998 (first entry)
XX
DE A. thaliana N-terminal truncated NIM-1 variant cDNA #1.
XX
KW NIM-1; noninducible immunity; systemic acquired resistance; SAR;
KW pathogen; disease; protection; immunomodulated; plant; cereal; fruit;
KW vegetable; virus; fungi; bacteria; insect; nematode; microbicide; ss.
XX Arabidopsis thaliana.
OS Synthetic.
XX
FH Key Location/Qualifiers
CDS 1..1410
FT /*tag= a
FT /product= NIM-1
FT /note= "variant"
XX
PN W09829537-A2.
XX
PD 09-JUL-1998.
XX
PE 23-DEC-1997; 97WO-EP07253.
XX
PR 10-JAN-1997; 97US-0035024.
PR 27-DEC-1996; 96US-0034378.
XX
PA (NOVS ) NOVARTIS AG.
XX
XX Friedrich LB, Molina Fernandez A, Ryals JA, Uknes SJ;
DR WPI; 1998-388119/33.
DR P-PSDB; W6447.
XX
PT Protection of immunomodulated plants against pathogens - comprises
PS applying microbicide to provide increase in resistance
XX Claim 14; Page 123-127; 164pp; English.
XX
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This sequence encodes a truncated variant NIM-1 protein from *Arabidopsis thaliana*. This protein is used in a method resulting in the protection of an immunomodulated plant having a first level of resistance and involves treatment with at least 1 microbicide that confers a second level of resistance, such that the plants have a third level of resistance greater than the sum of the first two levels. The method can be applied to a wide variety of plants (cereals, fruits, oilseeds, vegetables etc.) to protect against viruses, fungi, bacteria, insects and nematodes. The method provides a high level of resistance and allows a reduction in the amount of microbicide used. Since the process involves two different methods of protection, it is unlikely that the pathogen will develop resistance to the treatment.

Sequence 1597 BP; 467 A; 304 C; 381 G; 445 T; 0 other;

| | | | | |
|---------------------------|--------|---------------------|------------|--------------|
| Query Match | 25.3% | Score 549.4; | DB 19; | Length 1597; |
| Best Local Similarity | 63.9%; | Pred. No. 1.8e-138; | | |
| Matches 870; Conservative | 0; | Mismatches 476; | Indels 15; | Gaps 2; |

| | | | |
|----|------|---|------|
| Qy | 600 | GATGCTGTAATGAGTGATTTGGCTTATTTGTATAGTGGTAAGTTAGGCCTTCACCTAAA | 659 |
| Db | 4 | GAATCGGTTTGACTCTTTTGGCTTATGTTTACAGCAGCAGAGTGACAGCCGCCCTAAA | 63 |
| Qy | 660 | GATGTGTGTGTTTGTGTGCACAAATGACTGCTCTCATGTGGCTTCTAGCCAGCTGGGCA | 719 |
| Db | 64 | GGAGTTTCTGAATTCGCCACAGCAGAAATTCGTGCCACGTGGCTTCCCGCCGGCGGTGGAT | 123 |
| Qy | 720 | TTCTCGTGTGAGGTTTTTGTATACACATCATTTACCTTTTCAGATCTCTGAATTTGGTTGACAAG | 779 |
| Db | 124 | TTCAATTTGGAGGTTCTCTATTTGGCTTTTCATCTTCAAGATCCCTGAAATTAATTACTCTC | 183 |
| Qy | 780 | TTTTCAGAGACCACTACTCGGATATTTCTTGACAAAACCTGCAGCAGCAGATGTAATGATGGTT | 839 |
| Db | 184 | TATCAGAGGCACTTATTTGGACGTTGTAGACAAGTTGTTATAGGAGCACATTTGGTTATA | 243 |
| Qy | 840 | TTATCTGCTTCCAAACATTTTGTGGTAAAGCATCCGAGACATTTGCTTTTCAAGCTGCATTGAG | 899 |
| Db | 244 | CTCAAGCTTCTCTAATATATGCTGAAGCTTGATGAAGCTATTGGATAGATGTTAAAGAG | 303 |
| Qy | 900 | ATTATTTCTCAAGTCTAATGTTGATATCATAAACCTTGATAAGGCTTTGCCCTCATGACATT | 959 |
| Db | 304 | ATTATTTCTCAAGTCTAATGATAGATATGGTTAGTCTTTGAAAAGTCAATTTGCCGGAAGAGCTT | 363 |
| Qy | 960 | GTAACAAATTTACTGATTCACGAGCGGAACCTTGCTCTACAAGGCGCTGAAAGCAACGGT | 1019 |
| Db | 364 | GTTTAAAGAGATAATTGATAGAGCTTAAAGAGCTTGCTTTGGAGGTACCTTAAAGTAA | 418 |
| Qy | 1020 | TTTCCTTGATTAACATGTTTAAAGAGATACATAGGGCAATTTGGATTTCTGATGATGTTGAATTA | 1079 |
| Db | 419 | -----AGAAACATGCTCGAATGTACATAAGGCACCTGACTCGGATGATATTGAGTTA | 471 |
| Qy | 1080 | CTACAAATGTTGTAAAGAGGGGCATACTACCTTAGATGATGATGATGCTCTCCATTAT | 1139 |
| Db | 472 | GTCAGTTGCTTTTGAAGAGGATACACCAATCTAGATGATGGGTGGTCTTCCTTCAATTC | 531 |
| Qy | 1140 | GCTGTAGCGTATTGCGATGCAAGAGCTACAGCAGAACTTCTAGATCTTGCACCTTGCATG | 1199 |
| Db | 532 | GCTGTTGCATATTGCAATGTGAAGCCGCAACAGATCTTTTAAACITGATCTTGCAGAT | 591 |
| Qy | 1200 | ATTAATCAATAATTTCAAGGGGATACAGGTGCTGCAATGTTGACCCATGAGGAAGAG | 1259 |
| Db | 592 | GTCACCATAGGAATCCGAGGGGATATACGGTGTCTCATGTTGTCGATCGGAAGGAG | 651 |
| Qy | 1260 | CCTAAAATTTAGTGTCCCTTTTAAACCAAGAGCTAGACCTTCTGATCTGCATCCGAT | 1319 |
| Db | 652 | CCACAATTTGACTATCTCTATTTTGAAAAGGTGCAAGTGCATCAGAAGCAACTTTGGAA | 711 |
| Qy | 1320 | GGAAGAAAGCACTTCAAAATCGCAAGGGCTCACTAGGCTTTGGATTTTCAGTAAAGTCT | 1379 |
| Db | 712 | GGTAGAACCGCACTCATGATCGCAAAACCAAGCCACTATGCGCGTTGATGTAATAATATC | 771 |
| Qy | 1380 | CCGGAGGAAGGAAATCTGCTTCGAATGATCGGTTATGCATTTGAGATTTCTGGAGCAAGCA | 1439 |

PR 10-JAN-1997; 97US-0034730.
PI 10-JAN-1997; 97US-0035021.
PR 10-JAN-1997; 97US-0035022.
XX
PA (NOVS) NOVARTIS AG.
XX
XX Friedrich LB, Hunt MD, Lawton KA, Ryals JA, Steiner HY;
PI Uknes SJ;
XX
DR WPT; 1998-348536/30.
DR P-PSDB; AAW61984.
XX
PT Use of non-inducible immunity-1 gene - for transforming plants to
PT produce transgenic plants having a broad spectrum disease resistance
XX
PS Claim 9; Pages 149-152; 205pp; English.
XX
CC This cDNA encodes an altered form of the Arabidopsis thaliana non-
CC inducible immunity-1 (NIM1) protein. Sequences shown in AAV43661 to
CC AAV43665 represent variants of the NIM1 cDNA. The invention provides a
CC chimeric gene comprising a promoter active in plants operatively linked
CC to a DNA molecule that encodes an altered form of the NIM1 protein. Plant
CC cells stably transformed with a recombinant vector comprising such a
CC chimeric gene have a broad spectrum of disease resistance. The altered
CC NIM1 proteins act as dominant-negative regulators of the systemic
CC acquired resistance (SAR) signal transduction pathway. The transgenic
CC plants transformed with an altered NIM1 gene exhibits constitutive SAR
CC expression which is higher in the transformed plants than in a wild-type
CC plant. The products can be used for producing plants with a broad
CC spectrum disease resistance. Overexpression of NIM1 mimics the effects
CC of inducer compounds that induce constitutive immunity (CIM) phenotype
CC in plants. The inventions can be used with plants such as rice, wheat,
CC barley, rye, corn, potato, carrot, sweet potato, sugar beet, bean, pea,
CC chicory, lettuce, cabbage, cauliflower, broccoli, turnip, radish,
CC spinach, asparagus, onion, garlic, eggplant, pepper, celery, carrot,
CC squash, pumpkin, zucchini, cucumber, apple, pear, quince, melon, plum,
CC cherry, peach, nectarine, apricot, strawberry, grape, raspberry,
CC blackberry, pineapple, avocado, papaya, mango, banana, soybean, tobacco,
CC tomato, sorghum and sugarcane. The plants produced are resistant to
CC plant pathogens such as viruses, viroids, fungi, bacteria, insects such
CC as aphids and lepidoptera and nematodes. The plants produced can be used
CC in agriculture.
XX
SQ Sequence 1597 BP; 467 A; 304 C; 381 G; 445 T; 0 other;

Query Match 25.3%; Score 549.4; DB 19; Length 1597;
Best Local Similarity 63.9%; Pred. No 1.8e-138;
Matches 870; Conservative 0; Mismatches 476; Indels 15; Gaps 2;

QY 600 GATCCTGTATAGTGTATGGCTTATTTCTATAGTGTAAAGTTAGGCCCTTCCACCTAAA 659
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Job time : 253.181 secs

GenCore version 5.1.3
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OM nucleic - nucleic search, using sw model

Run on: October 7, 2002, 22:39:34 ; Search time 47.2395 Seconds
(without alignments)
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Scoring table: IDENTITY_NUC

Gapop 10.0 , Gapext 1.0

Searched: 383533 seqs, 122816752 residues

Total number of hits satisfying chosen parameters: 767066

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Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

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| 27 | 36.8 | 1.7 | 80595 | 4 | US-09-078-294-3 |

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ALIGNMENTS

RESULT 1
US-08-989-478-6
; Sequence 6, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING
; DISEASE RESISTANCE IN PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/989,478
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/033,177
; FILING DATE: 13-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: PF/5-21214/P1/CGC1911

: TELECOMMUNICATION INFORMATION:

| | | | |
|----|----------------------------|---|------------------------------------|
| | TELEPHONE: | (919) 541-8597 | |
| | TELEFAX: | (919) 541-8689 | |
| | INFORMATION FOR SEQ ID NO: | 6: | |
| | SEQUENCE CHARACTERISTICS: | | |
| | LENGTH: | 2011 base pairs | |
| | TYPE: | nucleic acid | |
| | STRANDEDNESS: | single | |
| | TOPOLOGY: | linear | |
| | MOLECULE TYPE: | cdna | |
| | ORIGINAL SOURCE: | | |
| | ORGANISM: | Arabidopsis thaliana | |
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| | LOCATION: | 1..2011 | |
| | OTHER INFORMATION: | /note= "NIM1 cdna sequence" | |
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| | LOCATION: | 43..1824 | |
| | OTHER INFORMATION: | /product= "NIM1 protein" | |
| | US-08-989-478-6 | | |
| | Query Match | 26.6%; Score 576.8; DB 2; | Length 2011; |
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| Qy | 475 | CGGTGCACCGGTGCATTTTGTCCGGCAGAGTCCGTTCTTTAAGAATTTGTTCGCGGTA | 534 |
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| Qy | 757 | AGATCTCTGAATTTGGTTGACAAGTTTCAGAGACACCTACTGSAATATCTTTCAGAAAACTG | 816 |
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| Qy | 817 | CAGCAGACGATGTAATGATGGTTTTATCTGTGTGCAACAATTTGTGTTAAAGCATGCGAGA | 876 |
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| Qy | 877 | GATTGCTTTTCAAGCTCGATTGAGATTATTGTCAAAGTCTAAATGTTGATATCATACACCCCTTG | 936 |
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RESULT 2
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; Sequence 7, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING
; TITLE OF INVENTION: DISEASE RESISTANCE IN PLANTS
;

```

NUMBER OF SEQUENCES: 32
CORRESPONDENCE ADDRESS:
ADDRESSEE: NO. 5986082artis Corporation
STREET: 3054 Cornwalls Road
CITY: Research Triangle Park
STATE: NO. 5986082th Carolina
COUNTRY: USA
ZIP: 27709
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/989,478
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/033,177
FILING DATE: 13-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,379
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,382
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,730
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,021
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,022
FILING DATE: 10-JAN-1997
ATTORNEY/AGENT INFORMATION:
NAME: Meigs, J. Timothy
REGISTRATION NUMBER: 38,241
REFERENCE/DOCKET NUMBER: PF/5-21214/P1/CGC1911
TELECOMMUNICATION INFORMATION:
TELEPHONE: (919) 541-8587
TELEFAX: (919) 541-8689
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 2011 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: cdna
FEATURE:

NAME/KEY: CDS
LOCATION: 43..1824
OTHER INFORMATION: /product= "altered form of NIM1"

OTHER INFORMATION: /note= "Serine residues at amino acid positions 55 and 59 in wild-type NIM1 gene product have been changed to Alanine residues."

FEATURE:

NAME/KEY: misc.feature

LOCATION: 205..217

OTHER INFORMATION: /note= "nucleotides 205 and 217

OTHER INFORMATION: changed from T's to G's compared to wild-type sequence."

Query Match

Best Local Similarity 26.6%; Score 576.8; DB 2; Length 2011;

Mismatches 98; Conservative 0; Mismatches 547; Indels 36; Gaps 4;

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Db 1763 CCAC 1766

RESULT 3
US-08-996-685-6
Sequence 6, Application US/08996685
Patent No. 6031153
GENERAL INFORMATION:
APPLICANT: Ryals, John
APPLICANT: Friedrich, Leslie
APPLICANT: Uknes, Scott
APPLICANT: Molina, Antonio
APPLICANT: Ruess, Wilhelm
APPLICANT: Knauf-Beiter, Gertrude
APPLICANT: Kung, Ruth
APPLICANT: Kessmann, Helmut
APPLICANT: Oostendorp, Michael
TITLE OF INVENTION: METHOD FOR PROTECTING PLANTS
NUMBER OF SEQUENCES: 32
CORRESPONDENCE ADDRESS:
ADDRESSEE: No. 6031153artis Corporation
STREET: 3054 Cornwallis Road
CITY: Research Triangle Park
STATE: No. 6031153th Carolina
COUNTRY: USA
ZIP: 27709
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/996,685
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/761,543
FILING DATE: 6-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,378
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,379
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,382

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Query Match 26.6%; Score 576.8; DB 3; Length 2011;
Best Local Similarity 62.7%; Pred. No. 1.5e-155;
Matches 981; Conservative 0; Mismatches 547; Indels 36; Gaps 4;
QY 415 CGGAGTTTGACTACTTCGCCGACGCTAAGCTTGTGGTTTCGGGCCGCTGAAGGAAATTC 474
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FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,730
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,021
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,022
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,024
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/875,015
FILING DATE: 16-JUL-1997
ATTORNEY/AGENT INFORMATION:
NAME: Meigs, J. Timothy
REGISTRATION NUMBER: 38,241
REFERENCE/DOCKET NUMBER: PF/5-21215/P1/CGC1912
TELEPHONE: (919) 541-8587
TELEFAX: (919) 541-8689
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 2011 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: cDNA
ORIGINAL SOURCE:
ORGANISM: Arabidopsis thaliana
FEATURE:
NAME/KEY: misc_feature
LOCATION: 1..2011
OTHER INFORMATION: /note= "NIM1 cDNA sequence"
FEATURE:
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LOCATION: 43..1824
OTHER INFORMATION: /product= "NIM1 protein"
US-08-996-685-6

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Qy 1417 GCATTTGATCTTGGGACAGCAGAAAGAGAGACCCCTCTCTAGGAGAACTTCTGTAT 1476
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Db 1283 CTTTGTGAGTGGCGGCGGATGAATTTGAAGATGACGCTGCTGATCTTGAAATAGAGTTG 1342
Qy 1537 GCCTGGCTAAACTCCTTTTCCAAATGGAAGCTAAAGTTGCAATGGACATTCCTCAAGTTG 1596
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Db 1643 CTGCTGAGAACGACTCAAAAAGAGCAAGGATACATGGAAATACAAAGAGACACTAAGA 1702

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Db 1763 CCAC 1766

RESULT 4
US-08-996-685-7
; Sequence 7, Application US/08996685
; Patent No. 6031153
; GENERAL INFORMATION:
; APPLICANT: Ryals, John
; APPLICANT: Friedrich, Leslie
; APPLICANT: Uknes, Scott
; APPLICANT: Molina, Antonio
; APPLICANT: Ruess, Wilhelm
; APPLICANT: Knauf-Beiter, Gertrude
; APPLICANT: Kung, Ruth
; APPLICANT: Kessmann, Helmut
; APPLICANT: Oostendorp, Michael
; TITLE OF INVENTION: METHOD FOR PROTECTING PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 6031153artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 6031153th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/996,685
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/761,543
; FILING DATE: 6-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,378
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
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; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,024
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/875,015
; FILING DATE: 16-JUL-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Weigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: PF/5-21215/P1/GC1912
; TELECOMMUNICATION INFORMATION:

TELEPHONE: (919) 541-8587
TELEFAX: (919) 541-8689
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 2011 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: cDNA
FEATURE:
NAME/KEY: CDS
LOCATION: 43..1824
OTHER INFORMATION: /product= "altered form of NIM1"
/note= "Serine residues at amino acid positions 55 and 59 in
wild-type NIM1 gene product have been changed to Alanine
residues."
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NAME/KEY: misc_feature
LOCATION: 205..217
OTHER INFORMATION: /note= "nucleotides 205 and 217
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US-08-996-685-7

Query Match 26.6%; Score 576.8; DB 3; Length 2011;
Best Local Similarity 62.7%; Pred. No. 1.5e-155;
Matches 981; Conservative 0; Mismatches 547; Indels 36; Gaps 4;
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QY 1834 CGGCAAGAGAGCGTCACTGAAGAGCAAAAGGTACATGGAACTTCAAGAAATTTCTGACTA 1893
DB 1643 CTGCTGAGAAACGACTACAAAAGAGCAAAAGGTACATGGAAATACAAAGAGACACTAAAGA 1702
QY 1894 AAGCATTCAGTGAAGTAAAGAAATTAATGATAGACTTAACAACTCTCTCATCTTTGTT 1953
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DB 1763 CCAC 1766

RESULT 5
US-08-989-478-9
; Sequence 9, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-John
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING


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RESULT 7

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US-08-989-478-11
; Sequence 11, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING
; TITLE OF INVENTION: DISEASE RESISTANCE IN PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/989,478
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/033,177
; FILING DATE: 13-DEC-1996
; PRIOR APPLICATION DATA:
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; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: PF/5-21214/Pl/CGC1911
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (919) 541-8587
; TELEFAX: (919) 541-8689
; INFORMATION FOR SEQ ID NO: 11:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 1608 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: cDNA
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; NAME/KEY: CDS
; LOCATION: 43..1608
; OTHER INFORMATION: /product= "Altered form of NIM1"
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Best Local Similarity 63.0%; Pred. No. 1.5e-138;
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Db 1463 GACATCCCGGCTGTAAGATAGCAGCTTTTCAAGATCTAGAGAGATCAAGATGAGAC 1522
QY 1714 TTAGAGCACTCTCTAGCACTGTAGAATTTGAAAAAGCGTTCTTTCCACGTTGTTTCAGAA 1773
Db 1523 TAAAGGCGCTTTTCAAAACGTTGAACTCGGGAAACGATCTTCTCCCGCGCTGTTCCGCG 1582
QY 1774 TTCTAAATAGATCATGGA 1792
Db 1583 TGCTCGACCATGATATGAA 1601

RESULT 8
US-08-996-685-11
; Sequence 11, Application US/08996685
; Patent No. 6031153
; GENERAL INFORMATION:
; APPLICANT: Rvals, John
; APPLICANT: Friedrich, Leslie
; APPLICANT: Uknes, Scott
; APPLICANT: Molina, Antonio
; APPLICANT: Ruess, Wilhelm

APPLICANT: Knauf-Beiter, Gertrude
APPLICANT: Kung, Ruth
APPLICANT: Kessmann, Helmut
APPLICANT: Oostendorp, Michael
TITLE OF INVENTION: METHOD FOR PROTECTING PLANTS
NUMBER OF SEQUENCES: 32
CORRESPONDENCE ADDRESS:
ADDRESSEE: No. 6031153artis Corporation
STREET: 3054 Cornwellis Road
CITY: Research Triangle Park
STATE: NO. 6031153th Carolina
COUNTRY: USA
ZIP: 27709
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/996,685
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/761,543
FILING DATE: 6-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,378
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,379
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,382
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,730
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,021
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,022
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,024
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/875,015
FILING DATE: 16-JUL-1997
ATTORNEY/AGENT INFORMATION:
NAME: Meigs, J. Timothy
REGISTRATION NUMBER: 38,241
REFERENCE/DOCKET NUMBER: PF/5-21215/P1/CGC1912
TELECOMMUNICATION INFORMATION:
TELEPHONE: (919) 541-8587
TELEFAX: (919) 541-8689
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 1608 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: cDNA
FEATURE:
NAME/KEY: CDS
LOCATION: 43..1608
OTHER INFORMATION: /product= "Altered form of NIM1"
OTHER INFORMATION: /note= "C-terminal deletion compared to wild-type NIM1."
US-08-996-685-11

Query Match 23.8%; Score 517.4; DB 3; Length 1608;
Best Local Similarity 63.0%; Pred. No. 1.5e-138;
Matches 882; Conservative 0; Mismatches 481; Indels 36; Gaps 4;

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| Qy | 415 | CGGAGTTTGACTACTCTCGCCGACGCCTAAGCTTGTGGTTTCCGCCCGCTGTAAAGGAATTC | 474 |
| Db | 218 | CGCCGGATGATTTCTACAGCGACGCTAAGCTTGTTCCTCCGAC--GCGCGGGAAGTTT | 274 |
| Qy | 475 | CGGTGCACCGGTGCATTTTCTCGCCGAGGAGTCCGTTCTTAAGAATTTGTTCTCGCGTA | 534 |
| Db | 275 | CTTTCCACCGGTGGTTTTTGTACGCGAAGACTCTTCTTCAAGACGCTTTAGCCGCCG | 334 |
| Qy | 535 | AAAAGGAGAGATAGTAGT-----AAGTGGAAATGAAGGAGGTGA | 576 |
| Db | 335 | CTAAGAAGGAGAAGACTCCAACAACCGCCGCGCTGAAGCTCGAGCTTAAGGAGATTG | 394 |
| Qy | 577 | TGAAGAGCATGAGGTGAGCTATGATGCTGTAATGAGTGTATTGGCTTATTTGTTATAGTG | 636 |
| Db | 395 | CCAAGGATTACGAAGTCGGTTTCGATTCCGGTTGTGACTCTTTTGGCTTAIGTTTACAGCA | 454 |
| Qy | 637 | GTAAGATTAGCCCTTCACTTAAAGATGTGTGTTTGTGTGGACAATGACTGCTCTCATG | 696 |
| Db | 455 | GCAGAGTAGACCCGCCCTAAAGGAGTTCTGAATGCCACACGAGAAATGCTGCCACG | 514 |
| Qy | 697 | TGGCTTGTAGCCACGCTGTGGCATTTCTCGTTGAGGTTTTGTACACATCATTTACCTTTC | 756 |
| Db | 515 | TGGCTTCGCGCGCGGTGGATTTTCATGTTGGAGGTTCTCTATTGGCTTTCATCTTCA | 574 |
| Qy | 757 | AGATCTCTGAATTGGTTTGACAACTTTACAGACACCTACTGGATATTCTTGACAAAAC | 816 |
| Db | 575 | AGATCCCTGAATTAATTACTCTATACAGAGCACTTATGGACGTTGTAGACAAAAGTTG | 634 |
| Qy | 817 | CAGCAGCATGTAAATGATGGTTTTATCTGTGCAAAACATTTGCGTAAGCATGCCGAGA | 876 |
| Db | 635 | TTATAGAGGACACATTTGGTTATACTCAAGCTGCTAATATATGCGTAAGCTTGATGA | 694 |
| Qy | 877 | GAITGCTTCAAGCTGATTTAGATTAATGTGCAAGTCTAAGTTGATATCAATAACCCCTG | 936 |
| Db | 695 | AGCTATTGGATAGATTAAAGAGATTATGTCAAAGTCTAATGTAGATATGGTTAGCTTG | 754 |
| Qy | 937 | ATAAGGCTTGCTCTCATGACATTTAAACAATTACTGATTCACGACGCGAACTTGGTC | 996 |
| Db | 755 | AAAAGTCATTGCCGGAAGAGCTTGTAAAGAGATAATTGATAGAGCTAAAGAGCTTGGT | 814 |
| Qy | 997 | TACAAGGCGCTGAAGCAACGGTTTTCTGTATAAACATGTTAAGAGGATACATAGGGCAT | 1056 |
| Db | 815 | TGGAGGTACCTAAAGTAA-----AGAAACATGCTCTCGAATGTACATRAGGCAC | 862 |
| Qy | 1057 | TGGATTCTGATGATTTGAAATTAATACTACAATGTTGCTAAGAGAGGGGCATACTACCC | 1116 |
| Db | 863 | TTGACTCGGATGATATTGAGTTAGTCAAGTTTGGCTTTTGAAGAGGATCACACCAATCT | 922 |
| Qy | 1117 | ATGATGATATGCTCTCCATTATGCTGTAGCGTATTGGCATGCCAAGACTACACAGAAC | 1176 |
| Db | 923 | ATGATGGGTGCTCTCAITTCGCTGTTGCAATATTGCAATGTGAAGACCGCAACAGATC | 982 |
| Qy | 1177 | TTCTPAGATCTTGCATTGCTGATTTAATCATCAAAATTCGAAGGGGATACACGGTGTGC | 1236 |
| Db | 983 | TTTTAAAACCTTGATCTTGCCGATGTCAACCATAGCAATCCGAGGGGATATACGTTGCTC | 1042 |
| Qy | 1237 | ATGTTGCAGCCATCAGGAAGAGCCCTAAATTTGTTAGTGTCCCTTTTAAACCAAGAGGCTA | 1296 |
| Db | 1043 | ATGTTGTCGGATTCGGAAGAGGACCAATTGATACTATCTCTATTGGAAAAAGGTGCAA | 1102 |
| Qy | 1297 | GACCTCTCTGATCTGACATCCGATGGAAGAAAAAGCACTTCAATCGCCAAAGGCTCACTA | 1356 |
| Db | 1103 | GTGCATCAGNAGCACTTTTGGRAGGTAGAACCGCACTCATGATCGCAAAACGCCACTA | 1162 |
| Qy | 1357 | GGCTTTGGATTTAGTAAAGTCTCCGGAGGAAGGAAAAATCTGCTTCGAATGATCGGTTAT | 1416 |
| Db | 1163 | TGCGGTTTGAATGTAATAATATCCCGAGCAATGCAAGCATTTCTCAAGGCGGACTAT | 1222 |
| Qy | 1417 | GCATTGAGATCTGGAGCAAGCAGAAAGAGACCCCTCTGCTAGGAGAGCTTCTGTAT | 1476 |
| Db | 1223 | GTGTAGAAATACTAGAGAAAGAGCAACACGAGAACAAATTTCTTAGAGATGTTCTCTCCCT | 1282 |

QY 1477 CTCTTGTATGGCAGCGGATGATTTCGCTATGAAGCTGTTAACCTTGAAAAATAGACTTG 1533
 ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
 Db 1283 CTTTGTGCAGTGGCGGCCGATGAATTGAAATGACGCTGCTCGATCTTGAAAATAGAGTTG 1342
 QY 1537 GCCTGGCTAAACTCCCTTTTCCAATGGAAGCTTAAAGTTGCAATGGACATTCCTCAAGTTG 1596
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 Db 1343 CACTTGTCTCAACGTCTTTTTTCCAACGGAAGACAAGCTGCAATGGAGATCGCCGAAATGA 1402
 QY 1597 ATGCACTTCTGAGTTCCCACCTGGCTAGCATCG---GCAAAAAGATGGCTAATGCACAGA 1653
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 Db 1403 AGGGAACATGTGATTCATAGTGACTAGCTCGACCTGACCCTCTACTGGTACGAAGA 1462
 QY 1654 GGACAACAGTAGATTTGAACAGAGGCTCCCTTTCAAAGATAAAGAGAGAGCACTTGAATCGCG 1713
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 Db 1463 GAACATCACCGGGTGAAGATAGCACCTTTTTCAGAATCCTAGAACAGCATCAAAAGTAGAC 1522
 QY 1714 TTAGAGCACTCTCTAGAACTGTAGAACITTTGAAAACGCTTCTTTCCACGTTGTTCAAG 1773
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 Db 1523 TAAAGCGCTTTCTAAACCGTGGAACTCGGGAACGATTCTTCCCGCGCTGTTTCGGCAG 1582
 QY 1774 TTCCTAAATAAGATCATGGA 1792
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 Db 1583 TGCTGCACGATATGAA 1601

RESULT 9
US-08-989-478-13
; Sequence 13, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING
; TITLE OF INVENTION: DISEASE RESISTANCE IN PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cornwallis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/989,478
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/033,177
; FILING DATE: 13-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,379
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy

[illegible]

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; APPLICATION NUMBER: US 60/034,382
; FILING DATE: 27-DEC-1996
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/034,730
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,021
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,022
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 60/035,024
; FILING DATE: 10-JAN-1997
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/875,015
; FILING DATE: 16-JUL-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DCKET NUMBER: PF/5-21215/P1/CGC1912
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (919) 541-8587
; TELEFAX: (919) 541-8689
; INFORMATION FOR SEQ ID NO: 13:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 1194 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: cDNA
; FEATURE:
; NAME/KEY: CDS
; LOCATION: 1..1194
; OTHER INFORMATION: /product= "Altered form of NIM1"
; OTHER INFORMATION: /note= "N-terminal/C-terminal chimera."
;
US-08-996-685-13

Query Match          22.6%; Score 490; DB 3; Length 1194;
Best Local Similarity 64.5%; Pred. No. 8.8e-131;
Matches 771; Conservative 0; Mismatches 410; Indels 15; Gaps

QY   600  GATGCTGTAATGAGTGTATTGGCTTATTGTGTATACGTGAAGTTAGGCCTTCACCTAAA    659
      ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db    4     GATTCGGTTGTGACTGTTTTTGCTTATGTTTACAGCAGCAGAGTGAGACC CGCCCTAAA    63

QY   660  GATGTGTGTGTTTGTGTGACAATGACATGCTCTCATGTGGCTTGFAGGCCAGCTGTGSCA    719
      ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db    64   GGAGTTTCTGAATGCGCAGACGAGAATTGCTGCCACGTGGCTTGCCGCCGCGCGTGGAT    123

QY   720  TTCCTGGTTGAGGTTTTGTACACATCAATTTACCTTTTCAGATCTCTGAAATGGTTGACAAG    779
      ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db    124  TTCATGTTGGAGGTTGCTCTATTATTTGGCTTTTCATCTTCAAAGATCCCTGAATAATTACTCTC    183

QY   780  TTTCAGACACACTACTCGATATTCTTGACAAAACTGCAGCAGACGATGTAATGATCGTT    839
      ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db    184  TATCAGAGCACCTTATGGACGCTTGTAGCAAGTTGTTATAGAGGACACATTTGGTTATA    243

QY   840  TTATCTGTTGCAAAATTTGTGGTAAGCATGCGAGAGATTGCTTTTCAAGCTGCATTGAG    899
      ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db    244  CTCAAGCTTGGCTTAATATATGTGTAAGCTTGTATGAAGCTATTGGATAGATGTAAGAG    303

QY   900  ATTTATGTCACGCTTAATGCTTGTATATCAACCCTTGATAAAGCCTTGCCTCATGACATT    959
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Db    304  ATTATTGTCAAGCTCAATGTAGATATGTTATGCTTTGAAAAGTCATTTCGCCGGAAGAGCTT    363

QY   960  GTAAAAAATAATTACTGATTTCAGAGCGGAACCTTGCTCTACAAAGGCCCTGAAAGCAACGGT    1019
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Db    364  GTTAAAGAGATAATTGATAGAGGTAAGAGAGCTTGGTTGGAGGTACCTAAAGTAA-----    418

QY   1020  TTTCTGTATAACATGTTAAGAGGATACATAGGGCAATTTGATGATGTTGAATTA    1079
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Db    419  -----AGAACATGCTCCGAATGTACATAGGCATTTGACTCGGATGATATTGAGTTA    471

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Db 4147 GATCTTGAATAAGAGT 4164

RESULT 12

US-08-996-685-1

/ Sequence 1, Application US/08996685

/ Patent No. 6031153

/ GENERAL INFORMATION:

/ APPLICANT: Ryals, John

/ APPLICANT: Friedrich, Leslie

/ APPLICANT: Uknes, Scott

/ APPLICANT: Molina, Antonio

/ APPLICANT: Ruess, Wilhelm

/ APPLICANT: Knauf-Beiter, Gertrude

/ APPLICANT: Kung, Ruth

/ APPLICANT: Kessmann, Helmut

/ APPLICANT: Oostendorp, Michael

/ TITLE OF INVENTION: METHOD FOR PROTECTING PLANTS

/ NUMBER OF SEQUENCES: 32

/ CORRESPONDENCE ADDRESS:

/ ADDRESSEE: No. 6031153artis Corporation

/ STREET: 3054 Cornwallis Road

/ CITY: Research Triangle Park

/ STATE: No. 6031153th Carolina

/ COUNTRY: USA

/ ZIP: 27709

/ COMPUTER READABLE FORM:

/ MEDIUM TYPE: Floppy disk

/ COMPUTER: IBM PC compatible

/ OPERATING SYSTEM: PC-DOS/MS-DOS

/ SOFTWARE: PatentIn Release #1.0, Version #1.30

/ CURRENT APPLICATION DATA:

/ APPLICATION NUMBER: US/08/996,685

/ FILING DATE:

/ CLASSIFICATION:

/ PRIOR APPLICATION DATA:

/ APPLICATION NUMBER: US 08/761,543

/ FILING DATE: 6-DEC-1996

/ PRIOR APPLICATION DATA:

/ APPLICATION NUMBER: US 60/034,378

/ FILING DATE: 27-DEC-1996

/ PRIOR APPLICATION DATA:

/ APPLICATION NUMBER: US 60/034,379

/ FILING DATE: 27-DEC-1996

/ PRIOR APPLICATION DATA:

/ APPLICATION NUMBER: US 60/034,382

/ FILING DATE: 27-DEC-1996

/ PRIOR APPLICATION DATA:

/ APPLICATION NUMBER: US 60/034,730

/ FILING DATE: 10-JAN-1997

/ PRIOR APPLICATION DATA:

/ APPLICATION NUMBER: US 60/035,021

/ FILING DATE: 10-JAN-1997

/ PRIOR APPLICATION DATA:

/ APPLICATION NUMBER: US 60/035,022

/ FILING DATE: 10-JAN-1997

/ PRIOR APPLICATION DATA:

/ APPLICATION NUMBER: US 60/035,024

/ FILING DATE: 10-JAN-1997

/ PRIOR APPLICATION DATA:

/ APPLICATION NUMBER: US 08/875,015

/ FILING DATE: 16-JUL-1997

/ ATTORNEY/AGENT INFORMATION:

/ NAME: Meigs, J. Timothy

/ REGISTRATION NUMBER: 38,241

/ REFERENCE/DOCKET NUMBER: PF/5-21215/P1/CGC1912

/ TELEPHONE: (919) 541-8587

/ TELEFAX: (919) 541-8689

/ INFORMATION FOR SEQ ID NO: 1:

/ SEQUENCE CHARACTERISTICS:

/ LENGTH: 5655 base pairs

/ TYPE: nucleic acid

/ STRANDEDNESS: single

/ TOPOLOGY: linear

/ MOLECULE TYPE: DNA (genomic)

/ HYPOTHETICAL: NO

/ ANTI-SENSE: NO

/ FEATURE:

/ NAME/KEY: exon

/ LOCATION: 2787..3347

/ OTHER INFORMATION: /product= "1st exon of NIM1"

/ FEATURE:

/ NAME/KEY: exon

/ LOCATION: 3427..4162

/ OTHER INFORMATION: /product= "2nd exon of NIM1"

/ FEATURE:

/ NAME/KEY: exon

/ LOCATION: 4271..4474

/ OTHER INFORMATION: /product= "3rd exon of NIM1"

/ NAME/KEY: exon

/ LOCATION: 4586..4866

/ OTHER INFORMATION: /product= "4th exon of NIM1"

/ FEATURE:

/ NAME/KEY: CDS

/ LOCATION: join(2787..3347, 3427..4162, 4271..4474, 4586..4866)

US-08-996-685-1

Query Match 15.0%; Score 326.8; DB 3; Length 5655;

Best Local Similarity 58.6%; Pred. No. 1.3e-83;

Matches 714; Conservative 0; Mismatches 392; Indels 112; Gaps 4;

Qy 415 CGGAGTTTGACTACTTCCCGACGCTTAAGCTTGCTGCGCCGCTGTAAGGAAATTC 474

Db 2962 CGCGGATGATTCTACAGCGACGCTAAGCTTGCTCTCCGAC---GGCGGGAAGTTT 3018

Qy 475 CGGTGCACCGGTGCATTTTGTGCGGAGAGTCCGTTTAAAGATTTTGTCTGCGGTA 534

Db 3019 CTTTCCACCGGTGGTTTGTTCAGCGAGAGCTCTTTCTTCAAGAGCGCTTTAGCCCGC 3078

Qy 535 AAAAGGAGAAGATAGTAGT-----AAGGTGGAATTAAGAGAGTGA 576

Db 3079 CTAAGAAGGAGAAGAGACTCCAAACAACACCGCGCGTGAAGCTCGAGCTTAAGGAGATTG 3138

Qy 577 TGAAGAGCATGAGGTGAGCTATCATGCTGTAATGAGTGTATGCGCTATTGTATAGTG 636

Db 3139 CCAAGGATTACGAAGTGGTTTCGATTCGGTTGACTGTTTGGCTTATGTTTACAGCA 3198

Qy 637 GTAAAGTTAGCCCTTCACCTAAAGATGTGTGTTGTGTGCAATGACTGCTCTCATG 696

Db 3199 GCAGAGTGAGACCGCGCTAAAGGAGTTCCTGAATGCGCAGACGAGAATTGCTGCCACG 3258

Qy 697 TGGCTTTAGGCCACGCTGTCGCTTCTGTTGAGGTTTGTACACATCATTTACCTTTC 756

Db 3259 TGGCTTGGCGCGCGGTGATTTTCATGTTGGAGGTTCTCTATTGCTGCTTTCATCTCA 3318

Qy 757 AGATCTCTGAAT----- 768

Db 3319 AGATCCCTGATTAATTACTCTCTATCAGGTAACACCATCTGCATTAGCTATGGTTA 3378

Qy 769 -----TGGTTGACAAGTTTCAGACACACTACTG 797

Db 3379 CACATTTCATGAATATGTTCTTACTTGTAGTACTTGTATTTCAGAGGCATTATTG 3438

Qy 798 GATATTTTACAAAACCTGCAGCAGCAGATGTAATGATGTTTTTATCTGTTGCAACAT 857

Db 3439 GAGCTTGTAGACAAAGTTGTTATAGAGGACACATTTGGTTATACTCAAGCTTGTAAATA 3498

Qy 858 TGTGTTAAAGCATGCGAGAGATTCTTTCAAGCTGCAATTCAGATTAATGTCAGTCTAAT 917

Db 3499 TGTGTTAAAGCTTGTATGAAGCTATTGGATAGATGTAAGAGATTAATGTCAGTCTAAT 3558

Qy 918 GTTGATATCATAACCCCTTGATAAAGCCTTGCCCTCATGACATTTGTAACAAATTAAGT 977

Db 3559 GTAGATATGTTAGTCTTTGAAAAGTCATTCCCGAAGAGCTTCTTAAAGAGATAATTGAT 3618


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Db 3379 CACATTCATGAATGTTCTTACTTGTAGTCTTGTATTTTCAGAGCCACTATTG 3438
QY 798 GATATCTTGACAAACAGTCAGCAGAGATGTAATGATGGTTTATCTGTGTGCAACATT 857
Db 3439 GACGTTGTAGACAAGATGTTATAGAGACACATTTGTTACTCAAGCTTGTCTAATATA 3498
QY 858 TGTGTTAAAGCATCGAGAGATGCTTTCAAGCTGCAATGAGATTATTGTCAAGCTCTAAT 917
Db 3499 TGTGTTAAAGCTTGTATGAAGCTATTGGATAGATGTAAGAGATATTGTCAAGCTCTAAT 3558
QY 918 GTTGATATCATACCCCTTGATAAGCCTTGCCCTCATGACATTTAAACAAATTAAGTAT 977
Db 3559 GTAGATATGTTAGTCTTTGAAAAGTCATTCGCGAAGAGCTTGTAAAGAGATAATGAT 3618
QY 978 TCACGAGCGGAACCTGCTCTACAGGCGCTCAAGACCAACGGTTTCTGTATGAACATGTT 1037
Db 3619 AGACGTTAAAGCTTGTGTTGGAGGTACCTAAAGTAAAG-----AAACATGTC 3666
QY 1038 AAGAGGATACATAGGCGATTGGATTCTGTATGATGTTGAATTAATACAAATGTTGCTAAGA 1097
Db 3667 TCGAATGTACATAAGGCACATGATCGATGATGATGATGATGATGATGATGATGATGATG 3726
QY 1098 GAGGGGATACCTACCTAGATGATGATGATGATGATGATGATGATGATGATGATGATG 1157
Db 3727 GAGGATCACACCAATCTAGATGATGATGATGATGATGATGATGATGATGATGATGATG 3786
QY 1158 GCAAGGACTACAGCAGAACTCTAGATGATGATGATGATGATGATGATGATGATGATG 1217
Db 3787 GTGAAGACCGCAACAGATCTTTTAAACTTGTATGATGATGATGATGATGATGATGATG 3846
QY 1218 AGGGATACACGGTGTCTGATGATGATGATGATGATGATGATGATGATGATGATGATG 1277
Db 3847 AGGGATATACGGTGTCTGATGATGATGATGATGATGATGATGATGATGATGATGATG 3906
QY 1278 CTTTTACCAAGAGAGCTAGACCTTCTGATGATGATGATGATGATGATGATGATGATG 1337
Db 3907 CTATTTGAAAAGAGTGAAGTGTGATGATGATGATGATGATGATGATGATGATGATG 1397
QY 1338 ATCCCAAGAGGCTCACTAGGCTTGTGATGATGATGATGATGATGATGATGATGATG 1406
Db 3967 ATCCCAAGAGGCTCACTAGGCTTGTGATGATGATGATGATGATGATGATGATGATG 1457
QY 1398 GCTTCGAATGATCGGTTATGATGATGATGATGATGATGATGATGATGATGATGATG 1457
Db 4027 TCTCTCAAGGCGGCTATGATGATGATGATGATGATGATGATGATGATGATGATGATG 4086
QY 1458 CTAGGAGAGCTTCTGATGATGATGATGATGATGATGATGATGATGATGATGATG 1517
Db 4087 CCTAGAGATGTTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT 1517
QY 1518 TACCTTGAAAATAGAGTT 1535
Db 4147 GATCTTGAAAATAGAGTT 4164
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RESULT 14

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US-08-880-179-1/c
; Sequence 1, Application US/08880179
; Patent No. 6091004
; GENERAL INFORMATION:
; APPLICANT: Ryals, John
; APPLICANT: Delaney, Terry
; APPLICANT: Friedrich, Leslie
; APPLICANT: Weymann, Kristianna
; APPLICANT: Lakton, Kay
; APPLICANT: Ellis, Daniel
; APPLICANT: Uknes, Scott
; APPLICANT: Jesse, Taco
; APPLICANT: Vos, Pieter
; TITLE OF INVENTION: GENE ENCODING A PROTEIN INVOLVED IN THE
; TITLE OF INVENTION: SIGNAL TRANSDUCTION CASCADE LEADING TO SYSTEMIC ACQUIRED RESIS
; TITLE OF INVENTION: IN PLANTS
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; NUMBER OF SEQUENCES: 17
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 6091004artis Corporation
; STREET: 520 White Plains Road, P.O. Box 2005
; CITY: Tarrytown
; STATE: New York
; COUNTRY: USA
; ZIP: 10591
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/880.179
; FILING DATE:
; CLASSIFICATION: 800
; ATTORNEY/AGENT INFORMATION:
; NAME: Meigs, J. Timothy
; REGISTRATION NUMBER: 38,241
; REFERENCE/DOCKET NUMBER: CGC 1909
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (919) 541-8587
; TELEFAX: (919) 541-8689
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 9919 base pairs
; TYPE: nucleic acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: DNA (genomic)
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; US-08-880-179-1

Query Match 15.0%; Score 326.8; DB 3; Length 9919;
Best Local Similarity 58.6%; Pred No. 1.8e-83;
Matches 714; Conservative 0; Mismatches 392; Indels 112; Gaps 4;

QY 415 CGGAGTTTACTACTTCGCGCAGCTAAGCTTGTGGTTTCCGGCCGCTGTGAAGGAAATTC 474
Db 3600 CGCCGGATGATTTCTACAGCAGCAGCTAAGCTTGTCTCTCCGAC---GGCCGGGAAGTTT 3544
QY 475 CGGTCACCGGTCATTTTTCGGGAGGAGGTCGCTTCTTTAAGAAATTTGTTTCGGGTA 534
Db 3543 CTTTCCACCGGTGCGTTTGTGTCAGCGAAGAGCTCTTTCTCAAGAGCGCTTTAGCCGCG 3484
QY 535 AAAAGGAGAAGAAATAGTAGT-----AAGGTGAATTGAAGGAGGTGA 576
Db 3483 CTAAAGAGGAGAAAGACCTCCAAACACACCGCGCGCTGAAGCTGAGCTTAAGGAGATTG 3424
QY 577 TGAAGAGCATGAGGTGAGCTATGATGCTGAATGAGTGTATTTGGCTTATTTGATAGTG 636
Db 3423 CCAAGGATTAGCAAGTCGGTTTCGATTCGGTTGTGACTGTTTGGCTTATCTTTACAGCA 3364
QY 637 GTAAAGTTAGGCTTCACCTAAAGATGTCGTGTTTGTGTGGACAATGACGTCTCTCATG 696
Db 3363 GCAGAGTGAGACCGCGCTTAAAGAGGTTTCTGAATGCGCAGACGAGAATTTGCTGCCACG 3304
QY 697 TGGCTTGTAGCCAGCTGTGGCATTTCCTGTTGAGTTTGTACACATCATTTACCTTTC 756
Db 3303 TGGCTTGGCGCGCGGCTGGATTCATGTTGGAGGTTCTCTATTTGGCTTTCATCTTCA 3244
QY 757 AGATCTCTGAAT----- 768
Db 3243 AGATCCCTGAATTAATTAATCTCTCTATCAGGTAAACACCATCTGCATTAAAGCTATGTTA 3184
QY 769 ----- 797
Db 3183 CACATTCATGAATATGTTTCTTACTTGTAGTACTTGTATTTGATTTTCAGAGCACTTATG 3124
QY 798 CATATTTCTGACAAAACCTGCAGCAGACGATGATGATGATGATGATGATGATGATGATG 857
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Db 3063 TGTGGTAAAGCTTGTATGAGCTTATTGAGATGATGTAAGAGAGATTATTGCTCAAGTCTTAAT 3004
QY 918 GTTGTATCATACCCCTTGTATAAGCCTTGGCTCATGACATTTGTAATTTACTGAT 977
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QY 978 TCACGAGCGGAACCTTGTCTACAAAGCCCTGAAAGCAAGCGTTTCTCTGATAAACATGTT 1037
Db 2943 AGAGGTAAAGAGCTTGTGTTGGAGGTACCTAAAGTAAAG-----AAACATGTC 2896
QY 1038 AGAGGATACATAGGCAATGTTGATTTCTGATGATGTTGAATTTACTACAAATTTGCTAAGA 1097
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QY 1518 TACCTTGAANAATAGATT 1535
Db 2415 GATCTTGAANAATAGAGT 2398

RESULT 15
US-08-989-478-15
; Sequence 15, Application US/08989478
; Patent No. 5986082
; GENERAL INFORMATION:
; APPLICANT: Uknes, Scott
; APPLICANT: Hunt, Michelle
; APPLICANT: Steiner, Henry-York
; APPLICANT: Ryals, John
; TITLE OF INVENTION: ALTERED FORMS OF THE NIM1 GENE CONFERRING
; DISEASE RESISTANCE IN PLANTS
; NUMBER OF SEQUENCES: 32
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: No. 5986082artis Corporation
; STREET: 3054 Cornwalis Road
; CITY: Research Triangle Park
; STATE: No. 5986082th Carolina
; COUNTRY: USA
; ZIP: 27709
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/989,478
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/033,177
FILING DATE: 13-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,379
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,382
FILING DATE: 27-DEC-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/034,730
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,021
FILING DATE: 10-JAN-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/035,022
FILING DATE: 10-JAN-1997
ATTORNEY/AGENT INFORMATION:
NAME: Meigs, J. Timothy
REGISTRATION NUMBER: 38,241
REFERENCE/DOCKET NUMBER: PF/5-21214/P1/CGC1911
TELEPHONE: (919) 541-8587
TELEFAX: (919) 541-8689
INFORMATION FOR SEQ ID NO: 15:
SEQUENCE CHARACTERISTICS:
LENGTH: 786 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: cDNA
FEATURE:
NAME/KEY: CDS
LOCATION: 1..786
OTHER INFORMATION: /product= "Altered form of NIM1"
OTHER INFORMATION: /note= "Ankyrin domains of NIM1."
US-08-989-478-15

Query Match 14.6%; Score 316.2; DB 2; Length 786;
Best Local Similarity 64.3%; Pred. No. 4.9e-81;
Matches 496; Conservative 0; Mismatches 263; Indels 12; Gaps 1;

QY 555 AAGGTGGAATTAAGGAGGTGATGAAGAGCATGAGGTGAGCTATGATGCTGCTTAATGAGT 614
Db 28 AAGCTCGAGCTTAAGGAGATTGCCAAGGATTACGAAGTTCGATTCGGATTGCGTGTGACT 87
QY 615 GTATTGGCTTATTGTTATAGTGTAAAGTTAGGCTTCCACCTTAAAGAGATGCTGTGTTTGT 674
Db 88 GTTTGGCTTATTGTTTACAGCAGCAGAGTGACCCGCCCTAAAGAGATTCTCAATGC 147
QY 675 GTGCAATGACTGCTCTCATGTGGCTTGTAGGCGAGCTGTGGCATTTCTGTTGAGGT 734
Db 148 GCAGACGAGAATTGCTGCCACGCTGGCTTCCCGCGCGGGGTGATTTTCATGTTGAGGT 207
QY 735 TTGTACACATCATTTTACCTTTTACAGATCTCTGAATTTGACAACTTTTACAGAGACACCTA 794
Db 208 CTCTATTGCTTCTCATCTTCAAGATCCCTGAAATTAATCTCTATCAGAGGACCTTA 267
QY 795 CTGATATTCTTGACAAAACCTGCAGCAGACGATGTAATGATGTTTATCTGTTTCAAC 854
Db 268 TTGGAGCTTTGTAGACAAAGTTGTTATAGAGACACATTTGTTATCTCAAGCTTCTAAT 327
QY 855 ATTTGTTGTAAGCATGCGAGAGATTGCTTTCAAGCTGCAATTTGATTTGCTCAAGTCT 914
Db 328 ATATGTTGTAAGCTTGTATGAAGCTATTGATGATGATGATGATGATGATGATGATGATGAT 387

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QY 915 AATCTTGATATATAACCCCTTGATAAAGCCTTGCTCATGACATTTGTAACAACTTACT 974
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Db 388 AATGTAGATATGTTAGTCTTGAAGAGTCATTGCCGAGAGAGCTTGTAAAGAGATAATT 447
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QY 975 GATTCAGAGCGGGAACCTTGCTCTACAGGCGCTGAAGCAACGGTTTTCCTGATAAACAT 1034
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Db 448 GATAGACGTAAGAGAGCTTGGTTGGAGGTACCTAAAAGTAA-----AGAAACAT 495
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QY 1035 GTTAAGAGGATACATAGGGCATTGGATTCTGATGATGTTCAATTACTACAATGTTGCTA 1094
    |||| |||| | | |||| | | |||| | | |||| | | |||| | | ||||
Db 496 GTCTCGAATGTACATAGGCACCTGACTCGGATGATATTGAGTTAGTCAAGTTGCTTTTG 555
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QY 1095 AGAGAGGGGCATACCTTAGATGATGATGATGATGATGATGATGATGATGATGATGATG 1154
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QY 1155 GATGCAAGACTACAGCAGAACTTCTAGATCTTGGCACTTGGCACTTGGCACTTGGCACT 1214
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Db 616 AATGTGAAGACCGCAACAGATCTTTAAACCTTGATCTTCCGATGTCAACCATAGGAAT 675
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QY 1215 TCAAGGGGATACAGGTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1274
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Search completed: October 8, 2002, 01:24:23
Job time : 116.239 secs

GenCore version 5.1.3
Copyright (c) 1993 - 2002 Compugen Ltd.

OM nucleic - nucleic search, using sw model

Run on: October 7, 2002, 21:32:09 ; Search time 1696.05 Seconds
(without alignments)
17284.510 Million cell updates/sec

Title: US-08-908-884-13
Perfect score: 2172
Sequence: 1 GTGACTTCTCACTATGGCT.....ATTGAAAAAAAAAAAAAAAAA 2172

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 13736207 seqs, 6748477542 residues

Total number of hits satisfying chosen parameters: 27472414

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : EST.*

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2: em_esthum:*
3: em_estin:*
4: em_estnu:*
5: em_estov:*
6: em_estpl:*
7: em_estro:*
8: em_htc:*
9: gb_estl:*
10: gb_est2:*
11: gb_htc:*
12: gb_gss:*
13: em_gss_hum:*
14: em_gss_inv:*
15: em_gss_pln:*
16: em_gss_vrt:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | Query Match | Length | DB ID | Description |
|------------|-------|-------------|--------|-------|-------------|
| c 1 | 517.2 | 23.8 | 613 | 9 | AW160235 |
| 2 | 457 | 21.0 | 654 | 10 | BG124935 |
| 3 | 400.6 | 18.4 | 736 | 10 | BE435499 |
| 4 | 354.2 | 16.3 | 516 | 9 | AW622846 |
| 5 | 348 | 16.0 | 503 | 10 | BE432768 |
| 6 | 316.2 | 14.6 | 614 | 10 | BG464249 |
| 7 | 261.2 | 12.0 | 539 | 10 | BI210424 |
| 8 | 249 | 11.5 | 557 | 9 | AW160234 |
| 9 | 234.2 | 10.8 | 573 | 9 | AV551266 |
| 10 | 232 | 10.7 | 455 | 10 | BE493178 |
| 11 | 211.2 | 9.7 | 772 | 12 | BH525927 |
| 12 | 198.2 | 9.1 | 700 | 10 | BM111027 |
| 13 | 191.8 | 8.8 | 667 | 10 | BG598808 |
| 14 | 179.6 | 8.3 | 458 | 9 | BE023215 |
| 15 | 171.8 | 7.9 | 450 | 9 | AW399343 |
| 16 | 167.2 | 7.7 | 547 | 10 | BE918569 |
| 17 | 164 | 7.6 | 569 | 9 | AW745943 |

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|---|----|-------|-----|-----|----|----------|
| c | 18 | 163.6 | 7.5 | 463 | 12 | BH211724 |
| | 19 | 162 | 7.5 | 491 | 10 | BF657743 |
| | 20 | 161.6 | 7.4 | 576 | 10 | BF096790 |
| | 21 | 157 | 7.2 | 588 | 10 | BM307942 |
| | 22 | 152.6 | 7.0 | 805 | 10 | BG414779 |
| | 23 | 150.2 | 6.9 | 744 | 10 | BG526766 |
| c | 24 | 146.6 | 6.7 | 629 | 12 | B26306 |
| c | 25 | 146.4 | 6.7 | 730 | 10 | BI968818 |
| | 26 | 146 | 6.7 | 430 | 9 | AI442277 |
| | 27 | 146 | 6.7 | 465 | 9 | AW216501 |
| | 28 | 137.4 | 6.3 | 765 | 10 | BG526883 |
| | 29 | 131.2 | 6.0 | 637 | 10 | BG521476 |
| | 30 | 130.4 | 6.0 | 462 | 9 | AL372473 |
| | 31 | 128.4 | 5.9 | 595 | 10 | BE801977 |
| c | 32 | 128.4 | 5.9 | 645 | 9 | AW310982 |
| | 33 | 124.4 | 5.7 | 569 | 10 | BE366197 |
| | 34 | 123.6 | 5.7 | 781 | 12 | BH483537 |
| | 35 | 122.8 | 5.7 | 562 | 10 | BE366196 |
| | 36 | 118.6 | 5.5 | 577 | 10 | BM324012 |
| | 37 | 115.8 | 5.3 | 535 | 9 | AW687759 |
| | 38 | 114.6 | 5.3 | 593 | 9 | AW618318 |
| c | 39 | 114.4 | 5.3 | 495 | 9 | AI997958 |
| c | 40 | 112 | 5.2 | 680 | 9 | AW309867 |
| | 41 | 110.8 | 5.1 | 461 | 9 | AI960862 |
| | 42 | 108.6 | 5.0 | 258 | 10 | T22612 |
| | 43 | 105.6 | 4.9 | 394 | 9 | BE020423 |
| c | 44 | 105.2 | 4.8 | 733 | 9 | AW349633 |
| | 45 | 103.6 | 4.8 | 669 | 9 | AW684122 |

ALIGNMENTS

RESULT 1

AW160235/c

LOCUS

DEFINITION

ACCESSION

VERSION

KEYWORDS

SOURCE

ORGANISM

REFERENCE

AUTHORS

TITLE

JOURNAL

COMMENT

FEATURES

source

AW160235 613 bp mRNA linear EST 18-MAY-2001
EST290093 L. pennellii trichome, Cornell University Lycopersicon
pennellii cDNA clone cLPT119 similar to A. thaliana transcription
factor inhibitor I kappa B homolog, mRNA sequence.
AW160235
AW160235.1 GI:6279769
EST.
Lycopersicon pennellii.
Lycopersicon pennellii.
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum;
Lycopersicon.
1 (bases 1 to 613)
Alcala,J., Vrebalov,J., White,R., Matern,A.L., Lakey,J., Holt,I.E.,
Liang,F., Hansen,I.S., Upton,J., Ronning,C.M., Craven,M.B., Fujii,
,C.Y., Bowman,C.L., Nierman,W., Fraser,C.M., Venter,J.C., Martin
,G.B., Tanksley,S.D. and Giovannoni,J.
Generation of ESTs from wild tomato (Lycopersicon pennellii)
trichomes
Unpublished (1999)
Contact: CUGI
Clemson University Genomics Institute
Clemson University
100 Jordan Hall, Clemson, SC 29634, USA
Email: <http://www.genome.clemson.edu/orders/index.html>
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Location/Qualifiers
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/db_xref="taxon:28526"
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/clone_lib="L. pennellii trichome, Cornell University"
/tissue_type="trichome"
/dev_stage="mixed stages"
/lab_host="SOLR"
/note="Vector: pBluescript SK-; Site.1: EcoRI; Site.2:
XhoI; Leaves of various stages were shaken in liquid

nitrogen, shearing off trichomes. This procedure yielded a mixture of cells highly enriched for trichomes, with minor contamination by other types of leaf cells."

BASE COUNT 159 a 148 c 107 g 199 t
ORIGIN

Query Match 23.8%; Score 517.2; DB 9; Length 613;
Best Local Similarity 93.1%; Pred. No. 9.1e-104;
Matches 564; Conservative 0; Mismatches 38; Indels 4; Gaps 2;
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Db 613 GGAGCAGCAGAAAGAGAGATCCACTACTAGGAGAGCTTCATTATCTCTGCTATGCG 554
Qy 1490 AGGGGATGATTTGGCTATGAAGCTGTATACCTTGAATAAGAGTTGGCTGCGCTAACT 1549
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Qy 1610 GTTCCACTGCTAGCATGCGCAAAAAGATGGCTTAATGACAGAGACACAGTAGATTT 1669
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Qy 1670 GAACGAGCTCCTTTCAAGATAAAGAGGAGCAGCTTGAATCGGCTTAGAGCACTCTCTAG 1729
Db 373 GAACGAGCTCCTTTCAAGATAAAGAGGAGCAGCTTGAATCGGCTTAGAGCTCTCTCTAG 314
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Db 313 AACTGTAGCACTTGAACACCGCTTCTTCCACGTTTTCAGAACTTCTTAATAAGATCAT 254
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Db 253 GGATGCTGATGACTTGTCTGAGATAGCTTACATGGGGAATGATCGAGTAGAAGAGCGTCA 194
Qy 1850 ACTGAAGAGCAAGGTACATGGAACTTCAAGAAATCTGACTAAGCACTTCACTGAGGA 1909
Db 193 ACTGAAGAGCAAGGTACATGGAACTTCAAGAAATTTTGTCTAAGCACTTCACTGAGGA 134
Qy 1910 TAAAGAAATATGATAGACTTAACACATCTCCTCATCTTGTTCCTCTACATCTAAGGG 1969
Db 133 TAAAGAAATTTGTCTAGACT--AACATGCTCCTCATCTTGTTCCTCTACATCTAAGGG 77
Qy 1970 AGTAGATAGCCCAATAGCTCCCTTTTAGGAATAGGTAATTTGATTAGGATATATGAG 2029
Db 76 AGTAGATAGCCCAATATCTCCCATTTAGGAATAGAT-TTTGATTTAGGATATGAG 18
Qy 2030 GAAGAA 2035
Db 17 GAAGAA 12

RESULT 2
BG124935
LOCUS BG124935 654 bp mRNA linear EST 31-JAN-2001
DEFINITION EST470581 tomato shoot/meristem Lycopersicon esculentum cDNA clone
cTOF7K1 5' sequence, mRNA sequence.
ACCESSION BG124935
VERSION BG124935.1 GI:12625123
KEYWORDS EST.
SOURCE tomato.
ORGANISM Lycopersicon esculentum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum;
Lycopersicon.
1 (bases 1 to 654)

REFERENCE van der Hoeven,R., Bezzerides,J., Sun,H., Cho,J., Utterback,T.,
AUTHORS Hansen,C., Ronning,C. and Tanksley,S.
TITLE Generation of ESTs from tomato shoot/meristem tissue

JOURNAL
COMMENT

Unpublished (2001)
Contact: CUGI
Clemson University Genomics Institute
Clemson University
100 Jordan Hall, Clemson, SC 29634, USA
Email: <http://www.genome.clemson.edu/orders/index.html>.
Location/Qualifiers
1..654

FEATURES
source

/organism="Lycopersicon esculentum"
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/db_xref="taxon:4081"
/clone="cTOF7K1"
/clone_lib="tomato shoot/meristem"
/tissue_type="shoot/meristem"
/dev_stage="developing shoots from 4-6wks old plants"
/lab_host="SOLR"
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
XhoI; Small expanding leaves from the growing tip were
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was immediately frozen in liquid nitrogen."
BASE COUNT 218 a 110 c 145 g 181 t
ORIGIN

Query Match 21.0%; Score 457; DB 10; Length 654;
Best Local Similarity 88.0%; Pred. No. 1.8e-90;
Matches 552; Conservative 0; Mismatches 50; Indels 25; Gaps 4;

Qy 1497 GATTTGCGTATGAAGCTGTATACCTTGAATAAGATTGGCTGCTAAACTCCTTTT 1556
Db 2 GATTTGCGTATGAAGCTGTATACCTTGAATAAGATTGGCTGCTAAACTCCTTTT 61
Qy 1557 CCAATGGAAGCTAAAGTTGCAATGGACATTTGCTCAAGTTGATGGCACTTCTCAGTTC 1616
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Qy 1617 CTGGCTAGCATCGGCAAAAAGATGGCTAATGCACAGAGCAACAGTAGATTTGACGAG 1676
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Qy 1677 GCTCCTTTCAAGATAAAGAGGAGCAGCTTGAATCGGCTTAGAGCACTCTCTAGA 1736
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Db 242 GAACCTTGGAAAAGCCTTCTTCCACGTTGTTCAGAAAGTTCTAAATAGATCATG 301
Qy 1797 GATGACTTGTCTGAGATAGCTTACATGGGGAATGATACGCAAGAGCGTCAACTGA 1856
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Qy 1857 AAGCAAGGTACATGGAACCTTCAAGAAATTTCTGACTAAAGCACTTCACTGAGGATA 1916
Db 362 AAGCAAGGTACATGGAACCTTCAAGAAATTTCTGCTAAAGCACTTCACTGAGGATA 421
Qy 1917 GAATATGATGAAGACTAACACATCTCCTCATCTTGTTCCTCTACATCTAAGGAGTAG 1976
Db 422 GAATTTGCTTAAGACT--AACATGTCTCTATCTTGTTCCTCTACATCTAAGGAGTAG 478
Qy 1977 AAGCCCAATAGCTCCCTTTTAGGAATAGGTAATGTATTAGGATATATGAGGAAGA 2036
Db 479 AAGCCCAATAGCTCCCTTTTAGGAATAGGTAATGTATTAGGATATATGAGGAAGA- 536
Qy 2037 AGGATTTTCTTGAACATAGCACTTCTTCCCTTTCATCATTTGATGTCAACATCATAC 2096
Db 537 -----ACACAGGAGCTCTCTTTCTTTTCATCATTTGAT-----GCATACAA 576
Qy 2097 AACAGCTGTACCAATAAAGCTTGTATTGT 2123
Db 577 AACACATGTACCAATAAAGCTTGTATTGT 603
RESULT 3

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BE435499
LOCUS EST406577 tomato breaker fruit, TIGR Lycopersicon esculentum cDNA EST 18-MAY-2001
DEFINITION clone cL8G27M10, mRNA sequence.
ACCESSION BE435499
VERSION BE435499.1 GI:9433342
KEYWORDS EST.
SOURCE tomato.
ORGANISM Lycopersicon esculentum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliopsida; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum;
Lycopersicon.
1 (bases 1 to 736)
Alcala,J., Vrebalov,J., White,R., van der Hoeven,R.S., Holt,I.E.,
Liang,F., Hansen,T.S., Craven,M.B., Bowman,C.L., Ronning,C.M.,
Nierman,W., Fraser,C.M., Martin,G.B., Giovannoni,J.J. and Tanksley
,S.D.
Generation of ESTs from tomato fruit tissue, breaker stage
Unpublished (2000)
Contact: CUGI
Clemson University Genomics Institute
Clemson University
100 Jordan Hall, Clemson, SC 29634, USA
Email: http://www.genome.clemson.edu/orders/index.html
5 prime sequence.
Location/Qualifiers
1..736
/organism="Lycopersicon esculentum"
/cultivar="TA496"
/db_xref="taxon:4081"
/clone_lib="tomato breaker fruit, TIGR"
/tissue_type="pericarp"
/dev_stage="breaker"
/lab_host="SOLR"
/notes="Vector: pBluescriptSKmCuadapt; Site_1: EcoRI;
Site_2: XhoI; Fruit were harvested at the breaker stage
(first sign of lycopene accumulation on the blossom end of
the fruit). Fruit were cut in half and the seeds and
locules were discarded prior to freezing the pericarp."
BASE COUNT 185 a 152 c 166 g 233 t
ORIGIN
Query Match 18.4%; Score 400.6; DB 10; Length 736;
Best Local Similarity 80.7%; Pred. No. 4.9e-78;
Matches 517; Conservative 0; Mismatches 94; Indels 30; Gaps 3;

QY 247 ATAGTAGACTGGTTTCTCGATCGAATGACATCAGCGGAACAGTAGTATATGCTGCA 306
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 119 ATAGTAGAAGTGGCTTTTCGGATTCCTCAATGATATAGTGAAGCAGTAGTATGCTGCA 178
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 307 TCGCGCGCGCATGACTGAATTTTCTCGCGCGAGACTTCGCGCGGAGACACTTTCAC 366
| || ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 179 TGAACGAT-----CGGAACACTTCACGTGGCAGACGTCATTCCTCC 217
QY 367 TGAACGCCATCGGAACACTGGAATCTATCTTCGATCGCTTTGCGCGAGTTTGACT 426
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 218 TCAACGCTCTCAGAAACACTAGAGTCATCTTCGATCGCTGCGCGGATTCGACT 277
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 427 ACTTCGCGGACGTAGCTTGCTGCTTCGCGCGCGGTGAAGAAATTCGGTGCACCGGT 486
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 278 TCTTCGCTGATGTAAGCTTCTGGCTCCAGGC---GGTAAGAAATTCGGGTGCATCGGT 334
QY 487 GCATTTTGTCCGGAGAGGAGTCGCTCTTTAAGAAATTTGTTCTCGCTAAAGGAGAA 546
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 335 GCATTTTGTCCGGAGAGTCCTTTTAAAGAAATGATTTCTGTGGGAAA-----GATA 388
QY 547 ATAGTAGTAGGTGAATTCAGGAGGCTGATGAAAGACATGAGGTGAGCTATGATGCTG 606
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 389 GCAACAGGAGTGGAACTCAAGAGCTGATGNAAGATGATGAGGTGAGCTTTTGATGCCG 448
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 607 TAATGAGTGATGGCTTATTTGTATAGTGGTAAAGTTAGGCCTTCAACCTAAAGATGTGT 666
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||

RESULT 4
AW622846/c
LOCUS AW622846 516 bp mRNA linear EST 18-MAY-2001
DEFINITION EST306916 tomato flower buds 3-8 mm, Cornell University
Lycopersicon esculentum cDNA clone cTOB5H2 5', mRNA sequence.
ACCESSION AW622846
VERSION AW622846.1 GI:7335873
KEYWORDS EST.
SOURCE tomato.
ORGANISM Lycopersicon esculentum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliopsida; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum;
Lycopersicon.
1 (bases 1 to 516)
van der Hoeven,R.S., Bezzeredes,J.L., Matern,A.L., Holt,I.E., Liang
,F., Hansen,T., Craven,M.B., Bowman,C.L., Ronning,C.M., Nierman,W.,
Fraser,C.M., Martin,G.B., Giovannoni,J.J. and Tanksley,S.D.
Generation of ESTs from tomato flower tissue, 3-8 mm buds
Unpublished (1999)
Contact: CUGI
Clemson University Genomics Institute
Clemson University
100 Jordan Hall, Clemson, SC 29634, USA
Email: http://www.genome.clemson.edu/orders/index.html
5 prime sequence.
Location/Qualifiers
1..516
/organism="Lycopersicon esculentum"
/cultivar="TA496"
/db_xref="taxon:4081"
/clone_lib="tomato flower buds 3-8 mm, Cornell University"
/tissue_type="flower"
/dev_stage="3-8mm buds"
/notes="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
XhoI; supplier: Tanksley; Flower buds and flowers were
taken from greenhouse plants (4-8 wks old, TA496). They
were immediately frozen in liquid nitrogen and then
size-separated while remaining frozen."
BASE COUNT 142 a 110 c 87 g 177 t
ORIGIN
Query Match 16.3%; Score 354.2; DB 9; Length 516;
Best Local Similarity 92.5%; Pred. No. 8.6e-68;
Matches 395; Conservative 0; Mismatches 28; Indels 4; Gaps 2;

QY 1609 AGTTCCTCCACTGGTAGCATCGCAAAAGATGGCTTAATGCACAGGACACACAGTATT 1668
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 516 AATTACCCTCGCTAGCATGAGGAAGATAGCTGTATGCACAGAGGACACAGTGATT 457
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
QY 1669 TGAACGAGCTCCCTTTTCAAGATAAAAGAGGAGCACTTCAATCGGCTTAGACACTCTCTA 1728
||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
```


| | | | |
|---|--|--|--|
| /db_xref="taxon:4558" | | | |
| /clone_lib="Embryo 1 (EM1)" | | | |
| /note="Organ: Embryos germinated for 24 hr; Vector: pBluescript II from Lambda zap II; Site_1: XhoI; Site_2: EcoRI; The library was made from poly-A RNA in the cloning vector lambda zap II. Clones to be sequenced were prepared by mass excision." | | | |
| BASE COUNT | 188 a 125 c 146 g 155 t | | |
| ORIGIN | | | |
| Query Match | 14.6%; Score 316.2; DB 10; Length 614; | | |
| Best Local Similarity | 70.4%; Pred. No. 2.1e-59; | | |
| Matches 423; Conservative 0; Mismatches 178; Indels 0; Gaps 0; | | | |
| QY | 936 | GATAAAGCCTTGCCATGACATTGTAATAACAATAATTACTATTCACGAGCGGAACCTGGT 995 | |
| Db | 8 | GAGAAGGCATTGCTCCAGATGTGTCAAGCAATTTGTTGATGCAAGGCTAAGTCTTGGG 67 | |
| QY | 996 | CTACAAGGGCCTGAAACCAACGGTTTTCTGTATAAACATGTTAAGAGGATACATAGGGCA 1055 | |
| Db | 68 | TTAGTTTACCAGAGGACAAGGGCTTCCCTTAACATACATGTAAAGAAGAGTACACAGGGCG 127 | |
| QY | 1056 | TTGGATTCTGATGATGTTCAATTACTACAAATGTTGCTTAAGAGAGGGGCATACACCTTA 1115 | |
| Db | 128 | CTGGATTCTGATGATGTAGAGCTAGTCCGAATGCTACTCAAGGAAGGAAAAAACAATACTC 187 | |
| QY | 1116 | GATGATGCATATGCTCTCCATTATGCTGTAGCGTATTGCGATGCAAGACTACAGACGAA 1175 | |
| Db | 188 | GATGATGCATATGCGTTACACTATGCTGTGCAACATTCGCACTCAAGATCACACACGAA 247 | |
| QY | 1176 | CTTCTAGATCTTGCACCTTCTCTGATTAATCATCAAAATTCAGGGGATACACGGTCTG 1235 | |
| Db | 248 | CTTCTGGATCTCGCACTTGCGAGATGTTAATCATAGGAACCAAGAGGCTATACGGTCTT 307 | |
| QY | 1236 | CATGTTGCAGCATGAGAAAGACGCTAAATTTGAGTGTCCCTTTTAAACCAAGAGGAGCT 1295 | |
| Db | 308 | CACATTGCTGCTATGAGAAGGGAACCTTAAATCATTTGCTCTCTTTTGACCAAGGAGCT 367 | |
| QY | 1296 | AGACCTTCTGATCTGACATCCGATGGAAGAAAGCACTTCAAAATCGCAAGAGGCTCACT 1355 | |
| Db | 368 | CGGCGCTCAGATCTCACATTGTCATCACAGAAAGCAGTACAGATCTCTAAACGACTTACA 427 | |
| QY | 1356 | AGGCTTGTGGATTTCAGTAAGTCTCCGGAGGAGGAAATCTGCTTGAATGATCGGTTA 1415 | |
| Db | 428 | AATCATGGGGATTACTTTGGGCTACTGAGGATGGAAGCCCTTCTCCTAAGATAGATTA 487 | |
| QY | 1416 | TGCATTGAGATTCTGGAGCAACGACAGAAAGAGACCCCTCTGCTAGAGAGGCTTCTGTA 1475 | |
| Db | 488 | TGTATTGAGATACTAGAGCAAGCTGAAAGAAAGGGGCCACATCTTGGAAGAGCATCAGTT 547 | |
| QY | 1476 | TCTCTTGCTATGGCAGGGCATGATTTGCGTATGAAGCTGTTATACCTTGAATAGAGTT 1535 | |
| Db | 548 | TCCTTTGCAATAGAGGAGACTCTCGCGGTGGAAGGTTGCTCTACCTTGAAACCCGAGTT 607 | |
| QY | 1536 | G 1536 | |
| Db | 608 | G 608 | |
| RESULT 7 | | | |
| BI210424 | | | |
| LOCUS | | | |
| DEFINITION | EST528464 cTOS Lycopersicon esculentum cDNA clone cTOS23C4 5' end, mRNA sequence. | | |
| ACCESSION | BI210424 | | |
| VERSION | BI210424.1 GI:14688148 | | |
| KEYWORDS | EST. | | |
| SOURCE | tomato. | | |
| ORGANISM | Lycopersicon esculentum | | |
| Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Solanales; Solanaceae; Solanum; Lycopersicon. | | | |
| REFERENCE | | | |
| AUTHORS | 1 (bases 1 to 539) van der Hoeven,R., Sun,H., Bezzerides,J., Cho,J., Utterback,R., Ronning,C. and Tanksley,S. Generation of ESTs from Tomato Suspension Cultures Unpublished (2001) Contact: CUGI Clemson University Genomics Institute Clemson University 100 Jordan Hall, Clemson, SC 29634, USA Email: http://www.genome.clemson.edu/orders/index.html . Location/Qualifiers 1..539 /organism="Lycopersicon esculentum" /cultivar="TA496, E6203" /db_xref="taxon:4081" /clone="cTOS23C4" /clone_lib="cTOS" /tissue_type="suspension cultures" /lab_host="SOLR" /note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2: XhoI; Suspension cultures of L.esculentum E6203 were grown in Murashige and Skoog based medium, supplemented with 1% coconut milk (filter sterilized and added after autoclaving), 2% saccharose, and 1mg/ml 2,4D (pH5.8). Fresh medium was added every 7 days, and cultures were grown at 25 C, with 12hrs of light and continuous shaking." | | |
| FEATURES | | | |
| source | 196 a 77 c 101 g 165 t | | |
| BASE COUNT | | | |
| ORIGIN | | | |
| Query Match | 12.0%; Score 261.2; DB 10; Length 539; | | |
| Best Local Similarity | 78.6%; Pred. No. 2.9e-47; | | |
| Matches 352; Conservative 0; Mismatches 88; Indels 8; Gaps 3; | | | |
| QY | 1724 | CTCTAGAACTGTAGAACTTGGAAAACGGTCTTCTCCAGCTGTTTCCAGAACTTCTAAATAA 1783 | |
| Db | 1 | CTCTAGAACTGTGGAACITGGAAAACGGTCTTCTCCAGTTGTTCCAGAACTTCTAAATAA 60 | |
| QY | 1784 | GATCATGGATGCTGATGACTTCTCTGAGATAGCTTACATGGGGAATGATACGGCAGAAGA 1843 | |
| Db | 61 | GATCATGGATGCTGATGACTTCTCTGAGATAGCTTACATGGGGAATGATACAGTAGAAGA 120 | |
| QY | 1844 | GGCTCAACTGGAAGAAGCAAGGTACATGGAACCTTCAAGAAATTCCTGACTAAAGCAATTCAC 1903 | |
| Db | 121 | GGCTCAACTGGAAGAAGCAAGGTACATGGAACCTTCAAGAAATTTGCTTAAAGCAATTCAC 180 | |
| QY | 1904 | TGAGGATAAGAAGAATATGATAAGACTTAACAACATCTCTCATCTTGTCTCTCTACATC 1963 | |
| Db | 181 | GGAGGATAAGAAGAATTTGCTAAGACT---AACATGCTCATCTTGTCTCTCTACATC 237 | |
| QY | 1964 | TAAGGAGTAGATAAGCCCAATAAGCTCCCTTTTAGGAAATAGGTAATGTTATTAGGATA 2023 | |
| Db | 238 | TAAGGAGTAGATAAGCCCAATAATCTCCCAATTTAGGAAATAGAT-TTTGTATTAGGACA 296 | |
| QY | 2024 | TATGAGGAAGAAGAGGATTTTCTTGTAACTAGCACTCTTCTCTTTCATCATTTTCATATG 2083 | |
| Db | 297 | TATGAGGAAGAACAACAGAGACTCTCTTCTT---TTTCATCATTTTGATGATCAACAAC 352 | |
| QY | 2084 | TCAACATACATACACAGCTGTACATAAACTTGTTATTGTTGCACCTTACAACCTTTGAAGA 2143 | |
| Db | 353 | ACATGTACCATAAACTTGTATTGTGAAAAAAGATAAAAATTTCAATTATTAGTTGAGAAGC 412 | |
| QY | 2144 | ACAGAATTTATTGAAAAAAGAAAAA 2171 | |
| Db | 413 | AATCATTTTGAAGAGTGAAGAAAAACAAA 440 | |
| RESULT 8 | | | |
| AW160234 | | | |
| LOCUS | | | |
| DEFINITION | EST290092 L. pennellii trichome, Cornell University Lycopersicon pennellii cDNA clone cLPT119, mRNA sequence. | | |
| ACCESSION | AW160234 | | |
| VERSION | AW160234 | | |
| KEYWORDS | EST. | | |
| SOURCE | Lycopersicon esculentum | | |
| ORGANISM | Lycopersicon esculentum | | |
| Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Solanales; Solanaceae; Solanum; Lycopersicon. | | | |

```
VERSION      AW160234.1  GI:6279768
KEYWORDS
SOURCE       Lycopersicon pennellii.
ORGANISM     Lycopersicon pennellii.

REFERENCE    1 (bases 1 to 557)
AUTHORS      Alcalá, J., Vrebalov, J., White, R., Matern, A.L., Lakey, J., Holt, I.E.,
              Liang, F., Hansen, T.S., Upton, J., Ronning, C.M., Craven, M.B., Fujii,
              C.Y., Bowman, C.I., Nierman, W., Fraser, C.M., Venter, J.C., Martin
              G.B., Tanksley, S.D. and Giovannoni, J.
              Generation of ESTs from wild tomato (Lycopersicon pennellii)
              trichomes
              Unpublished (1999)
JOURNAL      Contact: CUGI
COMMENT      Clemson University Genomics Institute
              Clemson University
              100 Jordan Hall, Clemson, SC 29634, USA
              Email: http://www.genome.clemson.edu/orders/index.html
              5 prime sequence.
              Location/Qualifiers
                source
                  1..557
                    /organism="Lycopersicon pennellii"
                    /db_xref="taxon:28526"
                    /clone="cLPT19"
                    /clone_lib="L. pennellii trichome, Cornell University"
                    /tissue_type="trichome"
                    /dev_stage="mixed stages"
                    /lab_host="SOLR"
                    /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
                    xhoI; Leaves of various stages were shaken in liquid
                    nitrogen, shearing off trichomes. This procedure yielded a
                    mixture of cells highly enriched for trichomes, with minor
                    contamination by other types of leaf cells."
BASE COUNT   137 a 120 c 128 g 172 t
ORIGIN
Query Match      11.5%; Score 249; DB 9; Length 557;
Best Local Similarity 77.1%; Pred. No. 1.4e-44;
Matches 334; Conservative 0; Mismatches 75; Indels 30; Gaps 3;

Qy 247 ATAGTAGGACTGCGGTTCTTCGATTGCAATGACATGACGCGGAAGCAGTAGTATGCTGCA 306
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 129 ATAGTAGAAGCTGTTTTCGGATTCCAATGATATTAGTGAAGCAGTAGTATGCTGCA 188
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 307 TCGGCGCGGCATGACTGAATTTTCTCGCGGAGACTTCGCGCGGAGAGATCACTTCAC 366
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 189 TGAACGAAT-----CGGAAACTTCACGGCAGACGTCATTTCCC 227
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 367 TGAACGCCCTATCGGAACACTGGAATCTATCTTCGATGCGTCTTTCGCGGAGTTTGACT 426
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 228 TCAACGCTCTATCAGAAACACTAGACTATCTTCGATGCGTCTGCGCGGATTTGCACT 287
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 427 ACTTCGCCGACGCTAAGCTTTGTGTTTCGCGCCCGTGTAAAGAAATTCGCGTGACCCGT 486
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 288 TCITTCGTGATGCGAAGCTTCTGGCTCCAGGC---GGTAAGGAAATTCGCGTGACCCGT 344
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 487 GCATTTTTCGCGGAGAGTCCGTTCTTTAAGAATTTGTTCTCGGTAAGAGGAGAAGA 546
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 345 GCATTTTTCGCGGAGAGTCCGTTTAAAGAAATTTAAGAAATTTAAGTCTGCGGAA 398
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 547 ATAGTAGAGTGAAGTGAAGAGGTGATGAAGAGCATGAGGTGAGCTATGAGCTG 606
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 399 GCAACACGAGCTGGAAGCTCAAGAGCTGATGAAGAGTATGAGGTGAGTTTATGCGG 458
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 607 TAATGAGTGTATTTGCTTATTTGATAGTGGTAAAGTTAGGCCCTTCCACCTAAGAGTGT 666
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 459 TGGTCAGTGTGCTCGCCTATTTGATAGTGAAGTTAGGCCCTGTCATCTAAGAGTGT 518
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 667 GTGTTTGTGGAGACATGACTGCTCTCTGCTGCTGTA 705
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
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Db 519 GTGTTTGTGTGGACAATGAGTGTGTTGCATGCTAGCTTGTA 557

RESULT 9
AV551266
LOCUS      AV551266 Arabidopsis thaliana roots Columbia Arabidopsis thaliana
DEFINITION cdna clone RZ123e05R 5', mRNA sequence.
ACCESSION AV551266
VERSION    AV551266.1 GI:8722679
KEYWORDS   EST,
SOURCE     thale cress.
ORGANISM   Arabidopsis thaliana
REFERENCE  1 (bases 1 to 573)
AUTHORS    Asamizu, E., Nakamura, Y., Sato, S. and Tabata, S.
TITLE      A large scale analysis of cDNA in Arabidopsis thaliana: Generation
of 12,028 non-redundant expressed sequence tags from normalized and
size-selected cDNA libraries
JOURNAL    DNA Res. 7, 175-180 (2000)
MEDLINE    20363093
COMMENT     Contact: Erika Asamizu
            The First Laboratory for Plant Gene Research
            Kazusa DNA Research Institute
            Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
            Email: asamizu@kazusa.or.jp, URL: http://www.kazusa.or.jp/en/plant/.
            Location/Qualifiers
              source
                1..573
                  /organism="Arabidopsis thaliana"
                  /strain="Columbia"
                  /db_xref="taxon:3702"
                  /clone="RZ123e05R"
                  /clone_lib="Arabidopsis thaliana roots Columbia"
                  /tissue_type="roots"
                  /note="Vector: pBluescriptII SK-; Site_1: EcoRI; Site_2:
                  xhoI"
BASE COUNT 181 a 104 c 137 g 151 t
ORIGIN
Query Match      10.8%; Score 234.2; DB 9; Length 573;
Best Local Similarity 64.1%; Pred. No. 2.6e-41;
Matches 375; Conservative 0; Mismatches 198; Indels 12; Gaps 1;

Qy 907 TCAAGTCTAATGTTGATATCATACACCTTGATAAGCCTTGCCCTCATGACATTTGTAAC 966
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 TCAAGTCTAATGTTGATATGTTAGTCTTGAAAAGTCATTGCCGGAAGAGCTTGTAAAG 60
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 967 AAATTACTGATTCAGGACGGGAACCTTGCTCTACAAGGCCCTGAAAGCAACGGTTTTCCTG 1026
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 61 AGATAAATGATAGACGTAAAGAGCTTGCTTTGGAGGTACCTAAAGATAAG----- 110
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 1027 ATAAACATGTTAAGAGGATACATAGGCGATTGGGATTCCTGATGATGTTGAATTACTACAAA 1086
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 111 --AAACATGCTCGAATGTACATAAGGCACCTTGACTCGGATGATATTGAGTTAGTCAAGT 168
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 1087 TGTTCCTAAGAGAGGGGCGATACCTACCCCTAGATGATGCTCTCCATTTATGCTGTAG 1146
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 169 TGCTTTTGAAGAGGATCACACCAATCTAGATGATGCTGTGCTCTTCATTTCCGCTTGTG 228
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 1147 CGTATTTGGGATGCAAGACTACAGCAGAACTCTAGATCTTGCACCTTCCTCATATTATC 1206
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 229 CATATTGCAATGTGAAGACCCGCAACAGATCTTTTAAACACTTGTATCTGCCGATGTCAACC 288
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 1207 ATCAAAATTCGAAGGGGATACAGGTTGCTGCTGTTCAGCCATGAGGAAAGAGCCTAAAA 1266
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 289 ATAGGAATCCGAGGGGATATACCGTGCTCTCATGTTGCTGCCATGCGGAAGAGCCACAAT 348
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Qy 1267 TTGTAGTGTCCCTTTTAAACCAAGAGGAGTAGACCTTCTGATCTGCATCCGATCGAAGAA 1326
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 349 TGATACTATCTCTATTGGAAAAAGGTGCAAGTGCATCAGAAGCAACTTTTGAAGAGTAGAA 408
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
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QY 1327 AAGCACTTCAAAATCGGCAAGAGCGCTCACTAGGCTTGTGGATTTCAGTAAGTCTCCGGAGG 1386
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 409 CCGCACTCATGATCGCAAAACAAAGCACTATGCGCGTTGAATGTAATAATATCCCGGAGC 468

QY 1387 AAGGAAATCTCGTTCCGATGATCGGTTATGCAATTGAGATTCTGGAGCAAGCAGAAAGAA 1446
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 469 AATGCAAGCAATCTCTCAAGGCGGCACTATGTGTAGAAATCTAGAGCAAGAAGACAAAC 528

QY 1447 GAGACCCCTCTGCVAGGAGAGCTTCTGTATCTCTCTCTGCTATGCGAG 1491
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 529 GAGAACAAATTCCTAGAGATGTTCTCCCTCTTTTCAGTGGCGG 573

RESULT 10
BE493178
LOCUS WHE0570.C11_F22E2 Triticum monococcum cDNA clone WHE0570.C11_F22, mRNA linear EST 16-APR-2001
DEFINITION Triticum monococcum cDNA clone WHE0570.C11_F22, mRNA sequence.
ACCESSION BE493178
VERSION BE493178.1 GI:9659771
SOURCE Triticum monococcum.
ORGANISM Triticum monococcum.
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae
; Triticeae; Triticum.
1 (bases 1 to 455)
Anderson,O.D., Chao,S., Dubcovsky,J., Echenique,V., Han,P.S., Hsia
,C.C., Kang,Y., Lazo,G.R., Miller,R., Rausch,C.J., Seaton,C.L.,
Stamova,B. and Tong,J.C.
The structure and function of the expressed portion of the wheat
genomes - Vegetative apex cDNA library from Triticum monococcum
Unpublished (2001)
Contact: Olin Anderson
US Department of Agriculture, Agriculture Research Service, Pacific
West Area, Western Regional Research Center
800 Buchanan Street, Albany, CA 94710, USA
Tel: 5105595773
Fax: 5105595818
Email: oanderson@pw.usda.gov
Sequence have been trimmed to remove vector sequence and low
quality sequence with phred score less than 20
Seq primer: Stratagene T3 primer.
FEATURES
source
Location/Qualifiers
1..455
/organism="Triticum monococcum"
/cultivar="DV92"
/db_xref="taxon:4568"
/clone_lib="WHE0570.C11_F22"
/library="Triticum monococcum vegetative apex cDNA
library"
/tissue_type="Vegetative shoot apex"
/dev_stage="Three weeks-old plants"
/lab_host="E. coli XL0LR"
/note="Vector: Lambda pBK-CMV (Lambda Zap Express),
excised phagemid; Site_1: EcoRI; Site_2: XhoI; The tissue,
total RNA, and poly(A) RNA were prepared, a cDNA library
was made, and the cDNA clones were in vivo excised at the
University of California, Davis (V. Echenique, B. Stamova
, J. Dubcovsky). Plasmid DNA preparations and DNA
sequencing were performed in the OD Anderson lab (all
other authors)."
```

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BASE COUNT 132 a 94 c 98 g 131 t
ORIGIN
Query Match 10.7%; Score 232; DB 10; Length 455;
Best Local Similarity 69.9%; Pred. No. 8.1e-41;
Matches 313; Conservative 0; Mismatches 135; Indels 0; Gaps 0;
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QY 833 GATGCTTTTATCTGTTGCAACATTTGTTGTTAAAGCATGCGAGAGATTGCTTCAAGCTG 892
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 8 GTTGATCTATCTGTTGCAACATTTATGCAACAAATCTTGGCGTGAACCTGTTGAGAGATG 97
```

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QY 893 CATTGAGATTATTGTCAAGTCTAATGTTGATATACATACCCTTGATAAGGCTTGCCTCA 952
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 68 CTGGAGATGTTAGTCCCGTCAAAATCTTGACATGATTACTCTTGAGAAAGCATTTGCCTGA 127

QY 953 TGCAATTTGAAACAAATTTACTGATTACGAGCGGAACTTGGTCTTACAAGGCGCTGAAAG 1012
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 128 AGATGTTATCAAGCAAAATTAATTGATTACCGGATAACTCTTGGATTAGCTTCACCCGAAGA 187

QY 1013 CAACGGTTTCTGTATAAACATGTTAAGAGGATACATAGGCGCATTTGATGATGATG 1072
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 188 CAATGGCTGTCTTACAACAAACGTAAGAAGGATACTCAAGGCACCTTGATTTGATGATG 247

QY 1073 TGAATTACTACAAATGTTGCTAAGAGAGGGGCATACCTACCTAGATGATGATATGCTCT 1132
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 248 GGAGCTTGTAGGATGCTGCTCACAGAAGGCGACACTAACCTTGATGATGATGATTTGCAAT 307

QY 1133 CAATTATGCTGTAGGATTTCGGATGCAAGACTACAGCAGAACTTCTAGATTTGCACT 1192
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 308 GCACATGCTGTAGAACACTGTGACTCAAAAATTTACAACAGAACTTCTGGACATCGCACT 367

QY 1193 TGCTCATATTAAATCATCAAAATTTCAAGGGGATACACGGTGCTGATGTTGCAGCCATGAG 1252
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 368 TCGGATGTTAATCTCAGAAACCCCAAGAGTTATACTGTTCTTCACATCCGCTGCTAGGCG 427

QY 1253 GAAAGAGCGCTAAAATTTAGTGTCCCTT 1280
      ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 428 GAGAGATCCTAAAATTTGTTGTTCCCTT 455
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```

RESULT 11
BH525927/c
LOCUS BH525927 BOGT Brassica oleracea genomic clone BOGT004, DNA linear GSS 13-DEC-2001
DEFINITION BOGT004TF BOGT Brassica oleracea genomic clone BOGT004, DNA
sequence.
ACCESSION BH525927
VERSION BH525927.1 GI:17734012
KEYWORDS GSS.
SOURCE Brassica oleracea.
ORGANISM Brassica oleracea.
```

```

REFERENCE
AUTHORS Town,C.D., Van Aken,S., Utterback,T. and Fraser,C.M.
TITLE Whole genome shotgun sequencing of Brassica oleracea
JOURNAL Unpublished (2001)
COMMENT Other_GSSs: BOGT004TR
Contact: Chris Town
TIGR
```

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9712 Medical Center Drive, Rockville, MD 20850, USA.
Tel: 301-838-3523
Fax: 301-838-0208
Email: cdtown@tigr.org
DNA is from a doubled haploid provided by Tom Osborn.
Seq primer: TF
Class: sheared ends.
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```

FEATURES
source
Location/Qualifiers
1..772
/organism="Brassica oleracea"
/strain="TO1000DH3"
/db_xref="taxon:3712"
/clone_lib="BOGT004"
/note="Vector: pBstXI; Site_1: BstXI; 2-3 kb sheared
genomic DNA inserted into pBstXI using BstXI linkers"
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BASE COUNT 199 a 187 c 176 g 210 t
ORIGIN
Query Match 9.7%; Score 211.2; DB 12; Length 772;
Best Local Similarity 61.0%; Pred. No. 3.1e-36;
Matches 367; Conservative 0; Mismatches 223; Indels 12; Gaps 1;
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QY 934 TTGATAAGCGCTTGCCTTCATGACATTTGTAACAAATTAATTACTGATTCACGAGCGGAAC 993
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Db 772 TCGACAAGTCTTTACCCCAAGACATCGTCAAAAGAGTCCAGACATCCGCAAGAGCTCG 713
Qy 994 GTCTACAAGGGCTGAAGCAACGCTTTCTCTGATAAATGTTAAGAGGATACATAGGG 1053
Db 712 GTCTCGAGCGCCGA-----GCCGGATAAATGATGTCAATCAATATACAAAG 665
Qy 1054 CATTGGATTCTGATGTTGATTAATTAATACAAATGTTGCTAAGAGGGGATACATACCC 1113
Db 664 CCGTTGACTCCAGCATGTTGAGCTTGTCAAGATGCTTTTGACAGAAGACACACAGGTC 605
Qy 1114 TAGATGATCATATGCTCTCCATTAATGCTAGTGTAGCGTATTTGGATGCAAGACTACAGAG 1173
Db 604 TAGACGACCGCTACGCTCTTCACTACGCTGTTGCACATTCGGATGTGAAGACGGCCTCG 545
Qy 1174 AACTCTAGATCTTGCACTTGTCTGATATTAAATCAATCAAAATCAAGGGATACAGGTGC 1233
Db 544 ATCTCATTGACATCGAGCTCGCTGACGTGGACCATAGAAACCGAGGGATACAGCGGC 485
Qy 1234 TGCATGTTGCAGCCATGAGGAAGAGCCCTAAATTTGATGTGCCCTTTTAACCAAGGAG 1293
Db 484 TTCACGTTGCTGGATGCGACGACGAGCCAGCTGATGTTTATTGACTAAAGGTG 425
Qy 1294 CTAGACCTTCTGATCTGATCCGATCCGATGGAAGAAAGACACTTCAAAATCGCAAGAGGCTCA 1353
Db 424 CGAATCGTCCGAGACGACGCTTTGACGGTAGAAGCGCTCTGGTGATTCGAAAAGGCTCA 365
Qy 1354 CTAGGCTTGTGATTTCACTAGTCTCCGAGGAAGAAATCTGCTTCGATGATCGGT 1413
Db 364 CTAAAGCTTCGGAGTATAATGCTAGTACGGAGCAAGGAGGCTCTCTGTAAGAGGAGGC 305
Qy 1414 TATGCAATTGAGATTTCTGGAGCAAGCAGAAAGAGACCCCTCTGCTAGGAGAAGCTTCTG 1473
Db 304 TATGCAATAGAGTACTAGAGCATCGCTGTAACACTAGGTAGTTCCTAGAGATGATTTAC 245
Qy 1474 TATCTCTTCTATGGCAGCGGATGATTTGCGTATGAAGCTGTTATACCTTGAAATAGAG 1533
Db 244 CTCTCTTCCAGTACTCTGATGAATTTGAGGATGAGGCTGCTATCTTGAAAACAGAG 185
Qy 1534 TT 1535
Db 184 GT 183

RESULT 12 700 bp mRNA linear EST 26-NOV-2001
BM111027 Solanum tuberosum cDNA clone cPRO10C3 5' end
LOCUS BM111027
DEFINITION BM111027
ACCESSION BM111027
VERSION
KEYWORDS
SOURCE EST.
ORGANISM potato.
Solanum tuberosum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum.
1 (bases 1 to 700)
van der Hoeven,R., Sun,H., Karamycheva,S.A., Tsai,J., Van Aken,S.,
Utterback,T., Chiemingo,A., Bougri,O., Buell,C.R., Ronning,C.,
Tanksley,S. and Baker,B.
Generation of ESTs from potato roots
Unpublished (2001)
Contact: Research Genetics, Libraries Division
Tel: 1-800-711-6195
Email: cdna@resgen.com
For clone info: please contact Research Genetics, Libraries
Division tel 1-800-711-6195, email cdna@resgen.com
Seq primer: T3.
FEATURES
source Location/Qualifiers
1..700
/organism="Solanum tuberosum"
/cultivar="Kennebec"

/db_xref="taxon:4113"
/clone="cPRO10C3"
/clone_lib="potato roots"
/tissue_type="roots"
/dev_stage="in vitro grown stem cuttings"
/lab_host="SOLR"
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
XhoI; supplier: Cornell University, Tanksley lab;
sequencing: The Institute for Genomic Research. Roots were
isolated from in vitro grown stem cuttings on CM medium.
Roots were isolated two weeks after placing the stem
cuttings from in vitro grown plants on medium."
BASE COUNT 195 a 132 c 179 g 194 t
ORIGIN
Query Match 9.1%; Score 198.2; DB 10; Length 700;
Best Local Similarity 60.5%; Pred. No 2.3e-33;
Matches 326; Conservative 0; Mismatches 213; Indels 0; Gaps 0;
Qy 1020 TTTCTCTGATAAACATGTTAAGAGGATACATAGGGCATTTGGATTTCTGATGATGTTGAATTA 1079
Db 161 TTGCATGAAAAGAGAAAATAGGATATACAAGSCATTGGATTCAGATGATGTTGAACCTT 220
Qy 1080 CTACAAATGTTGCTAAGAGAGGGGCATACCTACCTAGATGATGCATATGCTCTCCATTAT 1139
Db 221 GTCAAGCTTCTACTTAATAGTCTGACATAAGTTTAGATGGAGCCCTACGCTCTTCATTAC 280
Qy 1140 GCTGTAGCGTATTCGGATGCAAGACTACAGCAGAACTTCTAGATCTTGCACCTTGTCTGAT 1199
Db 281 GCTGTTGCATATTGTGACCCAGGTTGTTACTGAGGTTCTTGACTGGGTGTTGCTAAT 340
Qy 1200 ATTAATCATCAAAATTCAGGGGATACACGCTGCTGCATGTTGCAGCCATGAGAGAAAGAG 1259
Db 341 GTCAACCTTCGGAATACACGTGGTTACACTTGCATTTCACATTGCTGCCATCGCTAAGGAA 400
Qy 1260 CCTAAAATTTAGTGTCCCTTTTAAACCAAGAGAGCTAGACCTTCTGATCTGACATCCGAT 1319
Db 401 CCTCAATCATTTGATACATTTTACTAAGGAGCTCATGCATCAGAAATTTACATTGGAT 460
Qy 1320 GGAAGAAAGCACCTTCAAAATCGCCAAGAGCTCACTAGGCTTGTGATTTTCAGTAACTCT 1379
Db 461 GGGCAGAGTCTGTGTGGCATCTGTAGGAGCTGAGTAGGCTTAAGAGTACCATGCAAAA 520
Qy 1380 CCGAGGAAGAAAATCTGTTTGAATGATCGGTTATGATGATGATGATGATGATGATGATGATG 1439
Db 521 ACAGAACAGCCAGGAAGCAACAAAGATCGGATGATGATGATGATGATGATGATGATGATGATG 580
Qy 1440 GAAACAGAGACCTCTGCTAGGAGAAGCTTCTGATCTCTTCTGCTATGCGAGCGGATGAT 1499
Db 581 ATGGCTCACACCAATGACCGGAGATGCATATTTCTTCCCCCATGTTGGCCGATGAT 640
Qy 1500 TTGCGTATGAAGCTGTTATACCTTGAATAAGAGTTGGCTGGCTAAACTCCTTTTTC 1558
Db 641 CTGCCATGAACCTGCTCTACCTGGAACAGAGTGCAATTTGCACGATTTATTTGGTCCC 699
RESULT 13 667 bp mRNA linear EST 12-APR-2001
BM111027 Solanum tuberosum cDNA clone cST522E2 5' sequence,
LOCUS BM111027
DEFINITION BM111027
ACCESSION BM111027
VERSION
KEYWORDS
SOURCE EST.
ORGANISM Solanum tuberosum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum.
1 (bases 1 to 667)
van der Hoeven,R., Bezzerides,J., Sun,H., Cho,J., Chiemingo,A.,
Bougri,O., Buell,C.R., Ronning,C., Tanksley,S. and Baker,B.
Generations of ESTs from sprouting potato eyes
REFERENCE
AUTHORS
TITLE


```
Query Match      8.3%; Score 179.6; DB 9; Length 458;
Best Local Similarity 62.8%; Pred. No. 3e-29;
Matches 278; Conservative 0; Mismatches 165; Indels 0; Gaps 0;

QY 1036 TTAAGAGGATACATAGGCGATTGGATTCTGATGATGTTGAATTACTACAATTTGCTTAA 1095
DB 7 TCACATAAGATACACAGGATTGGATTTCAGATCATGTTGAGCTTGTAAACTTCTTTTAA 66

QY 1096 GAGAGGGCATACCTACCCCTAGATGATCATGCTCTCCATTATCTGTAGCGTATTCGG 1155
DB 67 ATGAATCAGACATTAATCTAGATGAAGCAATGCTCTCAATATCTGCAGCGCTACTGTG 126

QY 1156 ATGCAAGACTACAGCAGAACTCTAGATCTTGCATCTTGCATATTAATCATCAAAAT 1215
DB 127 ATCCCAAGCTTGTTCGAGGTACTTGGTTTGGGACTCGCTAATGCTCAATCTTCGAAAT 186

QY 1216 CAAAGGGATACAGGCTGCTGATGTTGCGAGCATGAGGAAGAGCCTAAATTTAGTGT 1275
DB 187 CTAGGGGTACACAGTCTTCATGCTGCCATGCTGAAGAGCCTTCCATTTATAGTAT 246

QY 1276 CCGTTTAAACCAAGAGCTAGACCTCTGATCTGACATCCGATGGAAGAAAGCACCTC 1335
DB 247 CCTACTTACGAAGGGGCTTGGCATCAGATTGACCTTTGATGCTCAGAGTCTGTGTTA 306

QY 1336 AATCGCCAAAGAGCTCACTAGGCTTGTGATTTTCAGTAACTCCGGAGGAAGAAAT 1395
DB 307 GTATTTGAGGAGTTGACAGGCCAACAGGATTCATGCAAAACAGAGCANGGAAAG 366

QY 1396 CTGCTTCGAATGATCGGTTATGATGATGATGATGATGATGATGATGATGATGATG 1455
DB 367 AAACAAACCAAGATCGGTTGATGATGATGATGATGATGATGATGATGATGATGATG 426

QY 1456 TGCTAGGAGAAGCTTCTGTATCT 1478
DB 427 TGCTTGGGATGCTGTATGCT 449

RESULT 15
AW399343
LOCUS
DEFINITION
EST309843 L. pennellii trichome, Cornell University Lycopersicon
pennellii cDNA clone cLPT7013 5', mRNA sequence.
ACCESSION
VERSION
AW399343.1 GI:6917813
KEYWORDS
SOURCE
Lycopersicon pennellii.
Lycopersicon pennellii.
Lycopersicon pennellii.
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum;
Lycopersicon.
REFERENCE
1 (bases 1 to 450)
Alcala,J., Vrebalov,J., White,R., Matern,A.L., Lakey,J., Holt,I.E.,
Liang,F., Hansen,T.S., Opton,J., Ronning,C.M., Craven,M.B., Fujii
,C.Y., Bowman,C.L., Nierman,W., Fraser,C.M., Venter,J.C., Martin
,G.B., Tanksley,S.D. and Giovannoni,J.
Generation of ESTs from wild tomato (Lycopersicon pennellii)
trichomes
JOURNAL
Unpublished (1999)
COMMENT
Contact: CUGI
Clemson University Genomics Institute
Clemson University
100 Jordan Hall, Clemson, SC 29634, USA
Email: http://www.genome.clemson.edu/orders/index.html
5 prime sequence.
FEATURES
source
Location/Qualifiers
1..450
/organism="Lycopersicon pennellii"
/db_xref="taxon:28526"
/clone="cLPT7013"
/clone_lib="L. pennellii trichome, Cornell University"
/tissue_type="trichome"
/dev_stage="mixed stages"
```

```
/lab_host="SOLR"
/notes="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
XhoI; Leaves of various stages were shaken in liquid
nitrogen, shearing off trichomes. This procedure yielded a
mixture of cells highly enriched for trichomes, with minor
contamination by other types of leaf cells."
BASE COUNT      120 a      85 c      116 g      129 t
ORIGIN

Query Match      7.9%; Score 171.8; DB 9; Length 450;
Best Local Similarity 61.5%; Pred. No. 1.6e-27;
Matches 275; Conservative 0; Mismatches 172; Indels 0; Gaps 0;

QY 1041 AGGATACATAGGGCATTTGGATTCTGATGATGTTGAATTACTACAATTTGCTTAAGAG 1100
DB 2 AGGATACACAGGCAATGGATTGGATGATGTTGAACCTTGTCAAGCTTTTACTTAATGAG 61

QY 1101 GGGCATCTACCCCTAGATGATGATGATGATGATGATGATGATGATGATGATGATGATG 1160
DB 62 TCTGACATAAGTTTAGATGGAGCCTACGCTCTTCATTACGCTGTTCATATTGTGACCCC 121

QY 1161 AAGACTACACAGCAACTCTAGATCTTGCATCTGCTGATTAATCATCAAAATTCGAAG 1220
DB 122 AAGTTTGTGCTGAGGTTCTTTGACTGGGTTCCTAATGTCACCTTCGGAATGCACGT 181

QY 1221 GGATACACGGTGTGCTGATGTTTGCAGCCATGAGGAAGAGCCTAAAATTTGTAGTCCCTT 1280
DB 182 GGTACACTGTGCTTCACATTCGTCGCCATCGTAAGGAACCCCTCAATTCATTCATCTT 241

QY 1281 TTAACCAAGAGCTAGACCTCTGATGATGATGATGATGATGATGATGATGATGATGATG 1340
DB 242 TTAACCAAGAGCTAGACCTCTGATGATGATGATGATGATGATGATGATGATGATGATG 301

QY 1341 GCCAAGAGGCTCACTAGGCTTGTGATTTTCAGTAAGTCTCCGGAGGAAGAAATCTGCT 1400
DB 302 TGTAGGAGGCTGACTAGGCTTAAGAGTACCATGCAAAACAGACAGAGGCGCAGGAAGCA 361

QY 1401 TCGAATGATCGGTTTATGATGATGATGATGATGATGATGATGATGATGATGATGATG 1460
DB 362 AACAAAGATCGGTTATGATGATGATGATGATGATGATGATGATGATGATGATGATGATG 421

QY 1461 GGAGAAGCTTCTGATGATGATGATGATGATGATGATGATGATGATGATGATGATG 1487
DB 422 GGAGATGCATTTATTTCTTGCCCATG 448

Search completed: October 8, 2002, 01:20:39
Job time : 1710.05 secs
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